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THE CONVALESCENT CARE OF CHILDREN WITH HEART DISEASE DUE TO RHEUMATIC FEVER

A SURVEY OF THE PROBLEM OF THE CARE OF CHILDREN WITH RHEUMATIC HEART DISEASE*

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BOSTON

THE following three articles pertain to a joint five-year study of the problem of the care of children with rheumatic heart disease by the Children's Mission to Children, the Children's Cardiac Clinic at the Massachusetts General Hospital, and the Committee for the Home Care of Children with Heart Disease. This study began in 1934 and ended in 1939. The details of the survey are included in the papers, but a brief statement of the history of the interest of the three organizations in the child with rheumatic heart disease, and the general conclusions of the study are worthy of emphasis. The aim was twofold: to determine the value of the relatively intensive care of these children, and to ascertain the best way to utilize the resources available for such care.

The Children's Mission to Children, founded in 1849, has had an interesting and useful function, concentrating in the last forty years on the foster-home placement of children who could not remain with their own families. Since 1914, it has specialized in this vitally important work for children with medical problems, at the suggestion of Dr. Richard Cabot, who found that many children remaining for a long time in hospital wards became "institutionalized" and retarded in their physical and mental convalescence. Gradually the children with rheumatic fever and rheumatic heart disease made up an increasing proportion of the total, and bedcare began to be arranged. Five special nursing homes were developed, with medical supervision, nursing service, social case-work service, visiting teaching provided by the Boston School Department, occupational therapy, and last but not least, a truly homelike atmosphere. With these resources and with a strong desire to contribute wisely, it was natural for the Children's Mission to join the other two groups in 1934 at the inauguration of the five-year study, which was undertaken to determine how best to care for the child with rheumatic heart disease.

The Children's Cardiac Clinic of the Massachusetts General Hospital was one of the pioneers in the country, starting out in 1912 under the guidance of Dr. Fritz B. Talbot, with the help of the Social Service Department of the Massachusetts General Hospital. Dr. Talbot's program included hospital care, supervision of bedcare at home, provision for amusement, convalescent homes, vocational guidance and prolonged supervision. The medical supervision of the clinic, begun by Dr. Richard S. Eustis and taken up later by the present writer, with the aid of Dr. Howard B. Sprague, Dr. Edward F. Bland, Dr. T. Duckett Jones and many others, has been continuously and intensively carried on with constant development and scientific contributions of value, and with very close affiliation with the House of the Good Samaritan. The most vital factor in the clinic's growth, however, has been the pioneer social-service work of Miss Edith M. Terry and her associates, Miss Katherine Breed and Miss Lorena M. Love, who have made world famous this aspect of the work of the Children's Cardiac Clinic. The question of the fundamental and ultimate value of all the time and money and effort expended in this work for children with rheumatic heart disease had often been raised in years past, and it was therefore natural for the clinic, with Dr. Bland's and Miss Terry's guidance, to join in the five-year study referred to above.

The Committee for the Home Care of Children with Heart Disease was organized under the

*This and the three following papers constitute a series from the Massachusetts General Hospital on behalf of the Children's Mission to Children and the Committee for the Home Care of Children with Heart Disease.

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leadership of Mrs. Fritz B. Talbot to help fulfill the second and third steps in Dr. Talbot's program, which had been started by the Social Service Department in 1912. This committee took over the program in 1914 and has carried out its mission in the fullest degree, initiating and supporting the work of Miss Terry and her helpers for many years, and bringing to the homes and families of the children, as well as to the children themselves, help, cheer, instruction, material aid, and perhaps most important of all,—an innovation and yet a crying and obvious need,—expert medical attention. Thus it was natural for this committee to join the other two groups in the five-year survey.

The results of the study are of much interest, although hard and fast conclusions cannot be drawn, even from this intensive investigation, because of the short space of time and the small number of cases. A lifetime of observation, with thousands of children studied as carefully as these, would be required to permit dogmatic statements. It is also important to realize that only in the most recent generation has the extensive scope of the problem of the rheumatic heart been adequately appreciated. Due recognition must be given the following factors: the long course of active infection lasting for many months and frequently for years; the temporary heart-muscle involvement, with dilatation of the heart during the time of active infection; the good recovery that usually ensues despite chronic valvular deformity; and fresh recurrences of rheumatic fever, precipitated by many different episodes, most commonly by acute upper respiratory infections with the hemolytic streptococcus.

The chief lesson learned from this five-year study is that long and adequate bedcare for children with acute rheumatism or acute rheumatic heart disease is best carried out when the environment is most carefully arranged and homelike, with intelligent nursing, expert and readily available medical attention, food adequate in calories and vitamins, protection against colds, and effective measures in the form of recreational and occupational therapy to secure and to hold the cooperation of the children themselves. Treatment in the early days of the illness and when the disease is highly active may best be begun in the hospital, general or special (like the House of the Good Samaritan), with transfer after a few weeks, as circumstances allow, to the children's own homes if prepared and adequate, or to special foster homes such as those developed by the Children's Mission. The co-ordination of the large general hospitals, the House of the Good Samaritan, the Children's Mission, the Committee for the Home Care of Children with Heart Disease and other resources in this service is one of the most important results of this five-year study. Equally significant is the vital contribution of bringing expert medical attention in addition to social service to the children's own homes and to the foster homes, a serious omission in days gone by. Another lack, which still exists, is that of adequate technical aid in the study of the blood of the children in foster homes and their own homes. In this disease all technical aid available is often needed in following the course of the infection. Leukocyte and erythrocyte counts, blood sedimentation rates and even electrocardiograms are helpful in doubtful cases and in decisions concerning the quiescence of active infection. Still another vital need and one of the most important problems of all, which has been as yet only partly solved, although its significance is fully recognized, is the protection of the child from colds, which are by far the commonest and most serious cause of exacerbations in subacute and quiescent cases of rheumatic fever. In institutions and in homes, such infections commonly involve many of the inmates, despite various precautions; experience to date has been that the best foster homes give the best protection. Finally, the morale and education of the children, very important factors in securing the co-operation of both children and parents in the treatment, have been maintained at a high level, with excellent results.

Is all this worth while? That important question, the first raised by all the groups at the beginning of the study, remains incompletely answered. Certainly from the standpoint of education of children and their families concerning this important disease, of enlisting their wholehearted co-operation, of making their lives happier and more useful, and of treating the disease more intelligently, great strides have been made. How many lives have been actually saved or how many hearts protected from greater damage one cannot say, since the data are as yet insufficient. Some children still die despite the most exquisite care of the sort outlined above, but as yet there has not been an adequate study of control cases, that is, cases which in the same environment and interval of time have been relatively neglected both medically and socially.* It is hoped and expected that our special care has reduced, at least somewhat, both mortality and morbidity in this group of children; even if it has not, the greater comfort and happiness that have resulted from this co-operative endeavor in themselves repay the cost and toil.

*An effort is being made to collect data from a control group for comparison with the findings in the group of children who have received intensive care.

RHEUMATIC FEVER IN CHILDHOOD*

With Especial Reference to a Five-Year Study of Home and Foster-Home Care

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BOSTON

THE acute phase of rheumatic fever, when it occurs, usually subsides in a few weeks, but careful study has shown that signs of continued activity of the rheumatic process persist thereafter for months, and occasionally for years. Some of these signs are obscure and are evident only when diligently sought both by clinical observation and by laboratory tests. There is now general agreement that it is important to protect the heart by rest in bed, not only during the relatively short acute phase, but also throughout the illness until all evidence of rheumatic activity has subsided. It is also especially essential to protect the patient from respiratory infection during this unstable period, since recrudescences of rheumatic activity are usually precipitated by colds and sore throats. The acceptance of these two general principles in the management of patients with rheumatic fever has created new and formidable problems.

Facilities at home, or in hospitals when necessary, for treatment of the acute phase can usually be provided. The subsequent care for months in bed is necessarily more difficult to arrange. In many places this has become increasingly a community responsibility, since the disease prevails in families with low incomes whose homes are usually not suitable for prolonged bedcare. At present relatively few institutions are available for this special purpose; more are certainly needed. In the meantime, other necessarily less costly methods have been employed to provide this long rest in bed.

Because of this problem, a five-year program was undertaken in Boston in 1934 to study further the merits and limitations of convalescent care as provided at home and in foster homes under closer medical and social-service supervision than had hitherto been attempted. Under the guidance of a committee of which the late Dr. George H. Bigelow was the original chairman, certain foster homes of the Children's Mission were made available to the Cardiac Clinic of the Massachusetts General Hospital for a co-operative study of the problems involved. It was planned that when possible the patient's own home was to be given first choice for convalescence. To this end, it was evident to those of us who had followed the course of clinic patients that in addition to medical supervision in the home a detailed study of individual and family needs in each case would be essential. Furthermore, past experience had emphasized the importance of happily occupying the minds of these youthful patients, for on this often depended the success or failure of otherwise well-planned therapy. Special attention directed to this phase of the program has yielded interesting methods, which are described in the papers by Miss Edith M. Terry and Mrs. Virginia B. Ebert.

The project as originally planned for five years has terminated, and although the joint program is continuing, it now seems appropriate to summarize the results to date with this specially studied group of patients.

TYPE OF CONVALESCENT CARE

During the five-year period from 1934 through 1939, children between five and fifteen years of age with rheumatic fever were accepted from the wards and clinics of the Massachusetts General Hospital for convalescent care. After social investigation of the home conditions and medical appraisal of the severity of the disease, a decision was made of the desirability of home or of foster-home care. Many factors, some only remotely related to the patient's illness, necessarily entered into this decision. The tendency throughout the study was to stress bedcare at home when it seemed at all feasible. Foster-home facilities were largely reserved for those children who required more expert supervision and nursing care than they could have received in their own homes. Medical-social workers have kept in touch with each patient at frequent intervals. All children have been visited by the physician in charge at monthly intervals, and oftener in special cases. The assistance of community-health nurses was invaluable in following the sicker group. Finally, it became evident soon after the project started that the intelligent management of these patients required ultimately the aid of certain minimal laboratory guides — the most helpful of which was the sedimentation rate of the red blood cells. The majority of these tests were made by a part-time technician

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who visited the homes, but some were carried out later at the hospital, when the patient's clinical improvement warranted a clinic visit.

After all evidence of infection had subsided, these patients were allowed out of bed, increasing the time an hour a week, and at the end of four or five weeks they returned to the outpatient clinic and from there their subsequent course was directed. The rheumatic process in this group was considered inactive when, in the absence of antirheumatic drugs, there were: freedom from rheumatic symptoms, such as arthritis, or arthralgia, abdominal and precordial pain, and nosebleeds; absence of signs such as pallor, nodules, chorea and erythema multiforme; a satisfactory general condition, which included a normal appetite and a progressive weight gain; a rectal temperature consistently under 100°F.; a normal sedimentation rate and white-cell count; and a normal auriculoventricular conduction time by electrocardiogram, corrected for the age of the patient.

Following this general plan 64 patients were studied. A certain number were accepted relatively early after the project started, because of previous rheumatic fever that, although inactive at the moment, was considered likely to cause trouble at a later date. Of this group there were 10 in whom the rheumatic process remained quiescent throughout the period of observation, and hence they may be dismissed without further comment. The remaining 54 patients required active treatment for rheumatic infection. In 38 cases the illness represented the initial attack, whereas the remaining 16 patients had had previous attacks of rheumatic fever.

A summary of the type of bedcare found necessary for this group may serve as a helpful index for those planning similar programs elsewhere. In 26 cases, or 48 per cent of the 54 active cases, ward care in the general hospital was necessary during the more acute stage of the disease. Two admissions were necessary for 6, and 1 patient was admitted three times. The average stay on the ward was four weeks. This represents a much shorter period of hospitalization than would have been necessary if the project had not been in operation. Foster homes were employed in 26 cases, but in only 10 for the entire duration of the convalescence; the remaining 16 patients were later supervised at home, after satisfactory adjustments had been made. In some cases a foster home was considered more desirable than the patient's own home for other than medical reasons — usually because of an unfavorable environment, somewhat less often because of a lack of understanding and co-operation on the part of parents, and occasionally because of intercurrent illness in other members of the family.

In contrast to the children having foster-home care, there were 28 patients, 52 per cent of the active group, whose entire convalescence was supervised at home. For 14 of these, approximately four weeks of hospitalization were necessary at the onset prior to transfer home. Family physicians were available and participated in the management in 10 cases.

Results

The duration of recognized rheumatic activity in this group of 54 children averaged eight months for each patient. In one case two and a half years elapsed before the infection was considered quiescent, and two other patients required a full two years of bedcare. It is of some interest to compare the duration of the disease in this group with the average period of hospitalization of a similar age group with the same disease at the House of the Good Samaritan in Boston.* At this institution the average stay for each patient during 1939 was six months. It must be remembered, however, that the latter group had received previous bedcare in general hospitals or elsewhere prior to admission to that institution, where the waiting list is often long and a considerable delay inevitable. It is a reasonable assumption that the actual duration of rheumatic activity in the two groups was not significantly different.

More important than the total duration of rheumatic activity is the relative severity of the patient's attack, since it is this feature of the disease that largely determines the mortality, as well as the degree of disability in those who survive. An arbitrary division of rheumatic activity into severe, moderate and mild has been helpful in studying the disease in other groups. By the same criteria, 17 (one third) of the 54 patients of the present group had severe rheumatic fever; in 26 (one half) the rheumatic fever was moderately severe; and in the remaining 11 (one fifth) it was mild. No case of pure chorea occurred in the study group. This distribution is a fair index of the relative severity of the disease in this section of the country.

In appraising further details of the clinical course of the group, it has again been helpful to have for comparison a considerably larger group at the House of the Good Samaritan during the same five-year period. A summary of the more important findings in these two groups is shown in Table 1. Certain striking differences in the outcome

*Seventy-ninth Annual Report of the House of the Good Samaritan: For the year ending December 31, 1939. 35 pp. Boston: House of the Good Samaritan, 1940.

as reflected in this table require special comment, since they are not, as at first glance one might suspect, due to the type of care provided, but rather to fundamental differences inherent in the two groups, evident perhaps only to those intimately familiar with both.

As indicated in Table 1, there were at the House of the Good Samaritan from 1934 through 1939 a total of 615 patients of essentially the same age as that of the patients in the five-year study, who also received protracted bedcare and even closer medical supervision. In the smaller group, 39 (72 per cent) developed rheumatic heart disease; the remaining 15 (28 per cent) showed no signs of car-

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TABLE 1. *A Comparison of Cases of Rheumatic Fever in the Present Study Group and the Group at the House of the Good Samaritan from 1934 to 1939.*

GROUP	NO. OF CASES	POTENTIAL RHEUMATIC HEART DISEASE	RHEUMATIC HEART DISEASE	DEATHS
Present study	54	15 (28%)	39 (72%)	6 (15%*)
Good Samaritan	615	228 (37%)	387 (63%)	119 (30%*)

*Of those with rheumatic heart disease.

diac involvement. This compares with 387 (63 per cent) of the larger group who developed obvious rheumatic heart disease, and 228 (37 per cent) who remained in the potential rheumatic-heart-disease class. In interpreting the above comparison, it must be remembered that the latter figures are weighted in a favorable direction by a considerable number of patients with simple chorea, which is somewhat less likely to damage the heart than rheumatic fever.

A comparison of the mortality figures for the two groups reveals that in the smaller series 6 died as a result of congestive failure, all necessarily from the heart-disease group of 39, thus giving a mortality of 15 per cent. From the larger series of 387 with heart disease, 119 died, giving a mortality of 30 per cent, or twice as high as that in the smaller series. This striking difference in mortality appears significant, as, in fact, it is. The explanation, however, is obvious and is not related to differences in the type of care provided for the two groups. The series at the House of the Good Samaritan included a greater number of much sicker patients with a relatively poor prognosis, especially those with congestive heart failure, which were early recognized at the Massachusetts General Hospital as unsuited (except in special cases) for management either in their own homes or in foster homes. This very fact frequently accounted for their presence at the House of the Good Samaritan.

DISCUSSION

In view of the necessarily limited number of cases and certain evident differences peculiar to the two groups, it is unlikely that a more detailed comparison would be significant. In fact, the results of such a detailed comparison, as already indicated, might be misleading. On the other hand, in attempting to evaluate this experience with the various types of care as provided in this community for children with rheumatic fever, the present method as it has developed over a period of years has proved adequate for the majority of cases. The results of this special study indicate that approximately 20 per cent, which includes the severe cases, ideally require institutional care for many months, both because of the more expert nursing care available and because of the necessary daily medical supervision. The presence of pericarditis, of pneumonitis or of congestive heart failure indicates in general a serious form of rheumatic fever in childhood, for which institutional management is indicated. For the remaining 80 per cent, foster-home care or supervised care in the patient's own home seems adequate. Either of the latter has, however, obvious disadvantages for careful clinical and laboratory study of the disease, but on the other hand, probably offers less exposure to respiratory infections, and hence fewer recrudescences of rheumatic activity, than care in a large institution. In many cases the small, well-run foster home is even better than the patient's own home. This is especially true if the units are very small and visitors infrequent.

When one attempts to appraise the relative cost of the different types of bedcare, certain obvious difficulties arise. The expense, in terms of patients a day, of maintaining a large general hospital, or even a smaller special institution, in contrast to a foster home, is necessarily high. In the present study and from data obtained from annual hospital reports, it appears that the daily cost of the three types of bedcare for a child with rheumatic fever in Boston is approximately as follows: Massachusetts General Hospital, $7.50; House of the Good Samaritan, $3.50; foster homes, $1.90. The expense involved in the patient's own home is largely indeterminate and necessarily variable, but the economic advantage of the last is evident from the above figures.

In the present report and in the two that follow we have presented our experience to date with one method in the management of children with rheumatic fever. We believe that when both are available, a compromise between institutional care in some cases and foster-home or home care in others will prove in the end most effective, as well as economically sound. It is our belief that special institutions are needed in larger communities for the care of the sicker group and to serve as important centers for the study of the disease. At pres-

ent there is no convincing evidence that one type of management, in contrast to other methods, will influence differently the natural course of this disease, if certain minimal requirements are met. These requirements should include, in addition to adequate bedcare, a studied approach to each patient and his family, supervised recreation and education during convalescence, all possible protection from respiratory infection during this period and, finally, medical supervision by physicians well acquainted with the persistent nature and recurrent proclivity of this chronic disease inaptly called "acute rheumatic fever."

Summary

Special study during five years of home and foster-home care for children with rheumatic fever indicates that, when well organized, it is adequate for the majority. The sicker patients need prolonged institutional care.

There appears to be no significant difference in the duration and course of the disease in this home and foster-home group and in the group who received similar care in an institution.

The economic and social advantages of home and foster-home care are evident.

A MEDICAL-SOCIAL PROGRAM FOR THE CHILD WITH RHEUMATIC FEVER*

EDITH M. TERRY†

BOSTON

THE special program for cardiac children at the Massachusetts General Hospital was developed, in conjunction with the already established Social Service Department, soon after the Pediatric Service was initiated in 1911 with Dr. Fritz B. Talbot as chief. At that time Dr. Talbot‡ outlined the following as essential for the adequate care of the cardiac child: hospital care for the acutely ill child; supervision of subsequent bedcare at home; provision for amusement; convalescent homes; vocational guidance; and prolonged medical and social-service supervision.

Although the growth of the clinic during the last thirty years has necessitated changes and promoted new activities, the main features of Dr. Talbot's original recommendations have also served as the basis of these newer developments. The general problem presented by the clinic child with rheumatic fever and heart disease is, broadly speaking, threefold: these are medical and social care, adequate education and suitable recreation.

The following is an outline of the methods employed and the resources available to us in Boston:

Medical and Social Aspects

Hospitalization has been provided, when it seemed desirable, at the Massachusetts General Hospital, or at the House of the Good Samaritan, for patients during acute episodes of rheumatic fever.

Placement in medical foster homes has been arranged by the Children's Mission to Children when the home situation has been found, after investigation by physician and social worker, to be detrimental to the patient's recovery.

Medical-social home care, a term that means joint supervision by physician and medical-social worker, is a service given at home to patients in bed who are unable to afford a private physician. Home visits, arranged by the social worker and made on a monthly or bimonthly basis, not only secure for the patient consistent medical care similar to that given by a family physician, but promote a better understanding on the part of the physician of the social implications involved in treatment, and make possible frequent conferences with the social worker.

Nursing care at home has been provided by visiting nurses, supported by the community. In addition to instructing the mother in bedside care, these nurses have supervised the making of temperature and pulse charts and the following of the diet recommended by the physician. They have also kept the physician and social worker in touch with new developments as well as the general progress of the patient.

Medical-social case work has been considered the fundamental function of the social worker since the establishment of the clinic, and has included a study of each new patient and the use of available resources for each. Such studies are reviewed from time to time to keep in the foreground the individual approach.

Consistent follow-up of the whole group has been carried on by the clinic social worker. In addition to routine postcards, letters and home visits on patients who have failed to report when requested to do so, this service has included arrangements for clinic appointments, and laboratory service as needed. One hundred per cent follow-up is the aim of this service, and during 1939, on a group of 263 patients who had been at the House of the Good Samaritan, we were able to report on all but 1. At each clinic visit a brief interim history of medical and social

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‡Talbot, F. B. *A Consideration of the Social Service Work of the Department of Diseases of Children in the Massachusetts General Hospital.* 2 pp. Privately printed, 1912.

conditions has been taken by the social worker in accordance with clinic procedure.

Educational Aids

Co-operation of home teachers has been secured through the public-school system. By means of a home-teaching service, when the acute phase of rheumatic fever is over, children in this group have been able, in the majority of cases, to make their grades and on their return to school go on with their classmates. Failure to go on with one's classmates presents one of the greatest problems the cardiac child has to face, and one that the adolescent child is often unable to accept.

Tutoring by college students. Repeated respiratory infections, with consequent days in bed, often interrupt the school program. Frequently children find that they are facing failure in one or more subjects because of such interruption. To prevent such disaster, we have been able, with the approval of the schools, to provide for some of the children in this group tutors from nearby colleges, who, by individual instruction, have made it possible for the child to surmount such difficulties.

Cardiac Summer School. For the last few years, in co-operation with the Radcliffe College Appointment Bureau, we have held during six weeks of the summer a school for cardiac children that has supplemented the work of the home teachers and the tutors. This school, held on the college grounds six hours a day and four days a week and carried along on progressive lines, has not only helped children educationally, but has provided suitable recreation for a group who are not at the time physically equipped to fit into ordinary camp life.

The school is carried on under the direction of a teacher in the public-school system, the cardiac occupational therapist and tutors provided by the college. In addition to the usual grade subjects, opportunity for individual expression is given through various group activities. The summer-school program also includes a hot lunch at noon planned by the hospital dietitian, and an hour's rest period out of doors.

School nurses. Problems of patients returning to public school have been met through the close co-operation of the school nurses, who have made adjustments regarding elimination of stair climbing, restriction regarding school activities such as gymnasium and sports, noon rest periods, lunches and dental care.

The *Mothers' Club,* group activity for the enlightenment and education of mothers undergoing the anxiety of caring for children who are ill or otherwise handicapped, has an important place in cardiac rehabilitation. The club meets monthly. In addition to a brief talk on problems relative to the care of the cardiac child, opportunity is given during the tea hour for members to discuss among themselves their individual problems. The mother whose child is in bed goes back with new courage after hearing from others about their children back at school.

Recreational Facilities

The *In-Bed Club,* with its membership of children facing like restrictions, its badge, its magazine to which the children contribute, and frequent contacts by mail and home visits, has tended to lessen the sense of isolation, especially for those in bed at home, so common to all children removed from an active group. In addition, it has been an aid in medical treatment by keeping the patients happy and contented during their convalescence. The *In-Bed Club* has spread to include chapters in this country and abroad.

Occupational therapy has also played an important part in treatment, not alone for the patient, but indirectly for the family as well. Gay colors, interesting crafts, the ability to give as well as to receive, and best of all, occupation for otherwise dreary hours, not only help to keep up both the patient's and the family's morale, but have therapeutic value. This therapy has also helped to guide patients along lines of possible later vocational adjustment through study and development of their interests and abilities.

This program had been operating at the Massachusetts General Hospital for a period of years before the joint study with the Children's Mission began. Although it was considered reasonably successful, it was recognized that there was a need for greater unity and continuity of the various services, of more careful work with a smaller selected group of patients, and of evaluation of needs and services from the point of view of both the individual cardiac child and the total community program. To carry out these purposes, the hospital and child-placing agency evolved a joint project that would make use of all existing resources of the previous program but would enlarge the opportunities for service.

As a means toward this end a working team was appointed and acting under the direction of a steering committee representing the co-operating organizations, was empowered to carry on the demonstration for a period of five years. This group consisted of a physician in charge of the medical aspects, a medical-social worker from the clinic, a social worker,* who was added to the staff of the child-placing agency, and an occupational therapist.

For this five-year study 64 children under eighteen years of age were selected from the Children's Cardiac Service. Their residences were as follows: 31 from Boston; 12 from the metropolitan area outside Boston; and 21 beyond this area. There were 33 boys and 31 girls. The nationalities represented are indicated by the parentage: Italian 25; American 21; Irish 6; Russian (Jewish) 5; Canadian 5; Portuguese 1; and Greek 1. The religious affiliations were: Roman Catholic 48; Protestant 10; Hebrew 5; and Greek Orthodox 1.

Unusually consistent medical care and periodic evaluation have been possible for this group through the services of the physician in charge, who has known all the patients individually and who, by frequent conferences with the social workers, has kept in touch with the social as well as the medical aspects of each patient's situation.

The two social workers agreed on certain functions that each was to perform in the project. The

*During the earlier part of the project this was a children's worker, in the latter a worker trained in medical-social work.

medical-social worker in the clinic assisted the physician in the selection of children suitable for this project out of the total group of ward and clinic patients. Selection was largely limited to those whose prognosis, both medical and social, was sufficiently favorable to justify the expenditure of the time and money.

A further role of the clinic worker was to act as liaison between physician, child-placing agency and hospital. Her third responsibility was to follow those patients when they no longer required service from the child-placing agency, either because they had made a satisfactory recovery, from both the medical and social standpoints, or because they were not responsive to social treatment.

The special worker assigned from the child-placing agency conducted a careful study of all cases accepted. She also made a special effort to understand the emotional reactions of these patients and their parents to the disease. Through frequent interpretation and a close and continuous relation, she alleviated anxiety and helped them toward an acceptance of chronic illness without undue emotional tension. She also aided with other personal adjustments that customarily come within the social worker's field.

From the social worker's point of view concerning this joint study, in which the medical and social analysis and treatment of the child have been carefully and thoughtfully correlated, lessons have been learned and valuable material gathered concerning the social, economic and educational aspects of the problem of cardiac children. One phase of the service, which has previously been given less attention than seems to us necessary, is the meaning of heart disease to the child himself—this will be considered in the following paper.

Summary

The manifold experience of the Children's Cardiac Clinic of the Massachusetts General Hospital in meeting the social, educational and recreational problems of patients with rheumatic fever and rheumatic heart disease has been presented in summary form.

SOCIAL SERVICES TO CHILDREN WITH RHEUMATIC FEVER*

Virginia B. Ebert†

BOSTON

THE two major interests of this co-operative five-year study have been to ascertain a rounded picture of the varied needs of the rheumatic-fever patient, and to investigate how these needs may best be met through community services. Special attention has been paid to the individual difficulties due to illness and common to this group of patients.

Care in the hospital for the acute episode had been the experience of most of our patients, the average stay being approximately four weeks. Social study begun in the hospital was completed by the children's agency worker, and the final plan for care was decided on jointly. The doctor described in the referral the type of care needed for the individual patient, and the medical-social worker attached to the children's agency investigated available possibilities to help in the decision of where that care might best be provided. Thus choice of aftercare depended on the individual situation, as well as on the physical need. Factors influencing the direction of care were often complex, and the original study of the situation was helpful in avoiding later pitfalls.

Aftercare was provided either in the patient's own home with close guidance of the children's agency worker to ensure careful following of the doctor's recommendations, or in medical foster homes, which will be described and discussed later. A well-integrated medical service was available for the patient by the same supervising physician of the hospital staff, whether the child was in his own home or in the medical foster home. The co-operation between the physician, the hospital social worker and the children's agency worker represented a closely knit, continuous service to the patient throughout the illness. During quiescence of the infection, consistent periodic follow-up in the clinic served to keep the patient co-operative and aware of his part in preventing recurrence. The continuity of medical supervision ensured a high quality of care, and resulted in the greater satisfaction and confidence of the patient. The personnel aiding the physician and the numerous and invaluable contributions by various community services have been described in the preceding paper.

Care in the Child's Own Home

The aim with the study group of children was to keep them in their own homes, since it was thought

*From the Children's Mission to Children.

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that care for an extended illness in the child's own home, when feasible, has many advantages. Thirty-eight of the 54 cases continuing in our care were followed at home.

In general, the child is most content in his natural, family surroundings. Anyone who has watched closely the reaction of children removed from their own homes knows the psychic trauma such an experience often entails. Parental love and family surroundings offer to the child the only security in a world as yet untried. It is sometimes a big request to ask him to be content with care by strangers. Some children, after placement has been explained and described to them and after they have been given a chance to participate in the planning, will bravely and calmly try this new experience — many of them, of course, finding compensatory pleasures and interests in the new home. Other children, for reasons of their own, — and they are usually good ones, — cannot calmly accept this separation, as shown in the following case:

Billy chose an unfortunate time to be born. His father had lost his job for the first time one month previously. His 10-year-old sister was at the time critically ill with rheumatic fever. The family had recently moved to a house in a far-outlying district. Electricity and convenient transportation, to which the family had been accustomed, had not yet penetrated the new section. There were many hardships in rebuilding and making a home. Billy's birth was difficult, and the mother's memories of the event so painful that she planned that he would be the last. Through various interacting causes, Billy assumed the position of the most troublesome of the four children until, when he fell ill with rheumatic fever and chorea at 8 years of age, his mother was only too glad to urge placement for him. Although he objected, he was placed because of the inaccessibility of the rural home to services for the ill child. As he began to get better, his energy went into an increasing vent of behavior problems, and on discharge he worked out a surprising amount of aggression against his family. He taunted his mother with the accusation that she did not want him at home anyway, and asked why she had brought him back. Placement was certainly not responsible for the sudden development of a highly aggressive personality, but one needed to understand a little more of this child's status in the family — a youngest, most insecure child — to prevent placement from augmenting already existing problems. His feeling of not being wanted was accentuated by placement.

Another gain of home management is that, under the friendly interest and guidance of the doctor and social worker, the family and the patient learn to care for all stages of the illness, and to plan a good health program to prevent recurrences. Thus an obvious advantage is that the family and the patient learn together how best to care for chronic disease. There is an opportunity, then, for the family to develop a feeling of adequacy in handling its own situation, rather than acquiring a feeling of frustration, which may result from relieving the family of desired responsibilities, or the equally harmful overdependence of the family on outside persons to take over the care of the sick member.

A further advantage in keeping the child at home during prolonged bedrest is that he does not suffer a loss of place in the family group. Some children return after extended medical placements virtual strangers to baby brothers or sisters who have grown and have actually forgotten the patient. Older brothers and sisters are shy and reserved with the newly returned child. It is not that irreparable damage has been done, — children soon find their old footing in common interests, — but the patient's sense of isolation and difference from the group of normal companions is called to conscious recognition by these painful experiences. This is illustrated by the following case:

A 15-year-old Italian girl refused placement from the hospital in a nursing home for the third time. Unalterable overcrowded conditions existed in her own home, because of the multitudinous and merry family group of nine living on a marginal income. Since she had missed the birth of the last baby, she wanted to be on hand for the next one. She remarked woefully to the worker: "People are always planning visits to meet me at home, and by the time they get there I'm either in the hospital or the foster home. They know me by description, I'm the sick one. But they never see me. I'm just a make-believe Stella." She was followed medically at home. Her physical condition to date (now two years later) has been unusually good, despite the crowded home conditions.

The social worker's most active period of service to the family during the patient's home care is in the early stages of the illness, when parents are eager to learn what constitutes good care, and when a schedule conducive to recovery can be worked out with them. Questions are many, since misunderstandings, doubts and fears of both the patient and the family give way in many cases under simple, truthful interpretations of the disease to understanding and a calmer, rational acceptance of the illness as inconveniencing and difficult in some ways, but within the range of comfortable adjustment.

Help in planning for the patient's care at home includes introducing the services of the visiting nurse, the results of whose consistent watchfulness of physical findings are recorded for the physician. Accessory services of the nurse include suggestions regarding the patient's diet and practical ways of making the patient more comfortable. These, in addition to her professional skill and friendly interest, are valuable aids to the family. The visiting teacher brings the needed antidote for frequent worries over school retardation. Worries that are not founded on previously existing school difficulties vanish with progress in lessons. All but 2 of the

54 children had home teachers provided through the public-school system. Six had the additional help of volunteer tutors, and 17 attended the summer school organized by the Cardiac Clinic. The occupational therapist on the staff of the Children's Mission brings the patient vital and interesting substitute activities to offset the sense of isolation and restriction. The studious or creative patient can be encouraged to make the most of this enforced period of leisure in learning new skills, such as modeling, weaving or wood carving. Vocational interests in some cases are found, or suggestions of a change of interest more in keeping with the patient's handicap subtly encouraged. The occupational therapist often finds her program demanded by healthy members of the family, who feel left out of fascinating and worthwhile handicrafts. The patient, instead of losing his particular place in the sun, has gained a new prestige. The occupational-therapy program, by creating a happy atmosphere of activity, geared to the child's physical capacity, helps to prevent excessive self-interest.

Plans for the patient's care at home may include material aid for the added stresses of illness among families of marginal income. Twenty-two families in the study had adequate incomes and physical resources for care. Thirty-two families had borderline or inadequate incomes. For the latter, if they desired the service, budgets were worked out on the basis of Community Health Association estimates of the total needs of a family according to size. Financial aid was frequently secured from the proper agency to ensure adequate food and living quarters.

While these long-time adjustments are being arranged, the extra expenses of illness, which a family is unable to meet, are provided by the children's agency. Much unhappiness and sense of failure, which can be oppressively acute, is avoided for those parents whose intelligence and capable management make them adequate to meet the demands of the illness, but whose pay check for one complicating reason or another fails to cover the requirements of their families. Expressions of gratitude from parents who were helped to provide adequate care at home, have made clear the earlier feelings of many — the unhappy resignation of being unable to provide essentials for a child, particularly a sick child, and a feeling that once more inadequate resources would force them to fail as parents. These general case-work services can help with environmental changes, thus easing necessary long-time bedcare, such as a move permitting more convenient accommodations for the patient's care. Many and varied are the needs during illness in the lower-income groups.

The types of families that can be depended on to provide proper care for the patient are for the most part easily distinguished in those first weeks of frequent visiting. One group of parents is represented by those whose questions and problems are natural in the face of meeting a new situation, and are alleviated through developing capacity to carry out medical recommendations. With the initial discouragement at prolonged illness somewhat abated, many mothers show creative imagination in handling the more complex and newly developed behavior often associated with illness, becoming interested in discussions with the social worker, and consciously offsetting undesirable family attitudes or actions.

There are two groups of parents whose cooperation is not so dependable. One is the group in which marked emotional instability exists. By marked instability I mean those homes where interest in the patient and in the good of the family as a whole does not come before a parent's preoccupation with personal dissatisfactions. Within a short time it is possible to evaluate the parent whose efficiency is impaired and who will hamper the patient's progress by neurotic attitudes. Patients from these families are best placed in foster homes, where a strong sense of responsibility for their own health care may be developed, since it is likely that parents disturbed by personal difficulties cannot offer sane guidance through ensuing years. Another group of children who seem to fare better for a period of recovery in the foster homes are those from homes where parents are simple and childlike, because of limited experience and background resulting in an inability to recognize or to handle the usual parental responsibilities.

The complicating problems of some parents may be open to a degree of change or relief through services offered by the medical-social worker. Psychiatric services can be used for others. To minimize as much as possible the effect on the patient, one may have to continue with those parents whose problems affecting the patient's adjustment and care are not open to relief through either of these channels.

During illness, the greatest development of the family's potential strength comes through the vital interest of the worker in the patient, and in the family's progress toward confidence and competence in handling the situation itself. This source of strength to the family is second only to faith in the physician and the security of adequate medical care.

Care in Medical Foster Homes

Medical foster homes have been used when uncontrollable situations existed in the patient's own

home, or consciously as an aid in educating the patient and the family in the recommended long-time care for this chronic illness. Twenty-six children were placed in foster homes once during the five years; 13, twice; and 1, thrice. The length of time spent in the foster home ranged from one to sixteen months.

The foster homes used are private homes in residential districts. They accommodate from 4 to 15 children in each, and are run by trained nurses under medical supervision. Initial investigation of the prospective home is made by the home finder of the Children's Mission, and periodic evaluation of the home is made on the basis of experience in working with the foster mother, so that a high standard is maintained. The foster mothers and their assistants are usually motherly persons, who prefer to maintain a comfortable and attractive nursing home to doing private or institutional duty. Needless to say, they like children and have some insight into the sick child's problems, as well as an ability to learn daily how best to handle the behavior components of illness, induced by resentment, discouragement, fear and other emotional attitudes. The social worker's job here is to further the foster mother's understanding of the child, and to help the patient with his difficulties. The foster homes are under the administration of the children's agency, which has the responsibility of approving and supervising them as well as paying for the service of the foster mother.

Proper health routine within the medical homes is well established, and becomes a habit with the children. There are usually three to four children in a room, depending on its size. Adequate air, light and space between the patients' beds are provided. The rooms are gay, colorful and comfortable. Space for the immediate isolation of respiratory infections is reserved in each home. Foster-home care for ill children has been a natural development to meet the recognized need for congenial, homelike surroundings for their best growth, physically, emotionally and intellectually.[1]

A contribution of the foster home to the child's physical comfort and progress is the purposeful, gradual education of the patient to assume responsibility for the proper health care within his own home. If the child is a responsible and praiseworthy partner in his own health program, the resentment and consequent rebellion, which so often impede physical progress, are offset.

Discussion

Whether in his own home, or the foster home, helping the child to establish a program correlated with the long-time needs created by chronic illness, continues to be the social worker's responsibility after recovery from active infection. The worker attempts to establish on her own work sheet, as it were, a clear idea of environmental influences on the patient's illness, based on factual material, observed actions and expressed attitudes, so that she may offer constructive guidance toward adjustment to the disease. Medical-social workers are agreed that their most important activity, because it is the fundamental understanding on which the specific services can be geared to meet the child's need, is the long intricate process of knowing well the patient himself in relation to his family and associates. Individualization, or an attempted understanding of what kind of person one is serving, is a basic social-work concept.[2]

One must daily face the practical necessity of knowing family attitudes and relations for a correct evaluation of the patient's attitude toward the illness. The child's reaction to disease is frequently a reflection of emotional attitudes for which the groundwork is already laid. It is important that these attitudes should not be more crippling than the degree of heart disease suffered. Any chronic illness frequently constitutes a focus of attention and can result in an accentuation or progressive development of a number of character traits, including dependence on others or an incapacitating fear of illness. One must understand how and why the patient is responding to disease, if one hopes to prevent or to lessen varying degrees of maladjustment in those children whose life experience tends to set the stage for unwholesome or exaggerated attitudes toward illness. If one is able to make the most of this opportunity, an early diagnosis of the social component of illness will result in a plan of treatment that is a vital, growing process.

An example of a social diagnostic statement made three weeks after a case had been accepted shows how the interrelated factual material — growing clearer, as time goes on — sets the trend of treatment from the earliest planning for the patient. It is recognized that human material of this sort is not subject to criteria of absolute definiteness as certain types of medical diagnoses are, but rather that one is dealing with feelings, attitudes, actions and influences subject to constant flux and change. The social diagnostic statement is a useful, flexible and, in large part, valid guiding post for action by the social worker in helping the patient to make his best adjustment to chronic illness. This early social diagnostic statement, although still lacking essential knowledge of the patient, is a beginning and permits constructive handling of individual reactions to rheumatic fever, as shown by the following case:

A 14-year-old, Roman Catholic boy of Irish parentage, in his first year in high school, was the oldest of three children. Finances were adequate, covering the essential needs for the family. The father had lost his status in the white-collar merchant class because of the depression, but had held a responsible laboring job consistently since that time. The family lived in its own house, maintaining excellent standards of care and household routine.

The patient had a severe attack of rheumatic fever, and was uncertain and confused about his illness. Placement was asked by the mother, because the boy refused to recognize the need of medical restrictions and the mother feared that she could not control him at home. His greatest interest was in sports, in which he had taken an active part, and in which he had entertained the idea of a life career. The patient showed anxiety and great interest in what rheumatic fever would mean to his future program. He had bet contemporaries on the ward a dime that, contrary to their explanations, rheumatic fever had no possible connection with heart trouble.

Coupled with the patient's refusal to accept illness was disappointment over possible school failure because of absence. This feeling was accentuated by the family's tendency to stress schoolwork with the patient more than with the other children, because he was a borderline student. There was indication in the school record that his capacity was average, or above.

Another social component of the patient's illness was worry over the results of his sickness on the family's economic security. There was evidence of further disturbance on the patient's part, because of conflict with his mother. Her "old-fashioned" standards and management were opposed to the patient's ideas, which were based on practices of his schoolmates. Evidence of the patient's complaints was found in the mother's oversolicitous supervision of the boy's hospital experience, as well as the fact that the only point of dissension between the patient's parents was the mother's discipline of him. It seemed that the patient's dissatisfactions with his mother's discipline had a legitimate basis.

Treatment plans for this patient included efforts to modify these factors, as well as to provide for immediate practical needs.

Our aim,[3] then, is to promote the patient's adherence to the medical program by helping him to understand and to work through his own specific problems in relation to illness and to facilitate a realistic acceptance of heart disease and possible chronic illness, so that he may pursue, to a reasonable degree, vocational interests and social satisfactions in spite of a limitation of activity.

Summary and Conclusions

The social service offered within the patient's own home, permitting the recovery program for rheumatic fever to be carried on there, is described. The major advantages of care in the child's own home are considered to be the patient's greater contentment, in most cases, and the development, through education and encouragement, of the family's and the patient's confidence and competence in handling the problems of chronic illness. Home care is considered unsuitable mainly when parents are markedly neurotic, or childlike and undisciplined.

Medical foster homes have been developed to offer homelike and wholesome surroundings for the ill child. They are used especially for the definite educational purpose of training the child to assume responsibility for his own health care, thus tending to prevent recurrence of active rheumatic fever. Foster-home placement is indicated not only for training the patient in a health program but also when unalterable conditions not conducive to recovery exist in the child's own home.

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PSEUDOCYESIS*

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PSEUDOCYESIS, or spurious pregnancy, has been an affliction of queen and commoner with reverberations in many fields from domestic to theological.

Good, in his *System of Nosology* (1823), first coined the term from *pseudes*, false, and *kyesis*, pregnancy. Writers from Hippocrates to the contemporaries have lavished on the syndrome descriptive adjectives that vary from "brain pregnancy" to "wind in the bowels." Today it is defined as a condition in which the signs and symptoms of pregnancy appear or are simulated in whole or in part. The clinical picture may be so exact as to deceive both patient and physician. One may add that this affliction is usually regarded as purposive on the part of the patient.

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HISTORICAL ASPECTS

Bivin and Klinger[1] in their classic monograph on the subject have provided an excellent historical background. Hippocrates[2] encountered twelve such patients in his practice in 300 B.C. As interest continued, there was considerable speculation as to the etiology. Each man proposed his views according to the medical knowledge of his day, although many writers were not concerned with its cause. Hippocrates[2] wrote:

> When the matrices taking in the air coming from the stomach which supplies it, swell, and the women believe themselves pregnant; or else, if the menses not flowing, accumulate in the matrices and stay suppressed for some time, there is continual flux in the matrices, sometimes with air coming from the stomach, sometimes from the effect of heat, and then again women imagine they are pregnant, seeing that the menses are suppressed and the matrices swollen.

William Harvey[3] suggested that both the brain and the uterus were filled with an "imagination (phantasma)" brought about by coitus or a conception without result.

Mauriceau[4] (1721) speaks of a "false great belly" engendered by nothing but wind mixed with waters. "This false great belly . . . is often caused by wind which blows up and distends the womb and which women often times discharge with as much noise as if it came from the fundament. Sometimes it is nothing but water gathered there in such abundance, as some have been seen to void a pailfull without any child, though they verily believed they were with child." Girard[5] (1801), of Lyon, thought "the impulse given to the uterus by coitus sufficed to give birth to signs of false pregnancy, although the sperm had not been absorbed by this organ. The seminal fluid gives life particularly to the uterus which reacts on all the system as if she had something in this cavity."

Schmitt[6] (1857) was the first to consider the subject on a hysterical basis, as being due to the effect of an excited imagination.

> It is as if impregnation proceeded from the brain, a matter which can only be comprehended, and that obscurely, from the intimate polar conception (sympathy) known to exist between the cerebral and sexual systems, together with a degradation (depression) of the cerebral into the depths of the ganglionic system; together with a magnetic effort on the part of the latter to break through the limits of individuality (or those allotted to it).

The majority of writers believed that this was not self-deception, and not entirely a product of the imagination, for it is a phenomenon repeatedly observed in animals — creatures reputedly without imagination.

Underhill[7] (1877) looked on pseudocyesis as a mental aberration and but one of a number of symptoms of such imbalance:

> The delusion in all these cases . . . is a false interpretation of bodily sensations occurring for the most part in the abdominal viscera. . . . Air moving about in the bowels, whether giving rise to tympanitis or not, is the most frequent source of sensation which the disordered brain falsely recognizes as movements of the child. Or . . . simply the twitchings of the abdominal muscles may be mistaken for the sensation of quickening, the disordered mental faculties being unable to appreciate the difference. . . . Simple distention of the abdomen, whether from intestinal gases or graver causes, may also give rise to a false belief in the existence of utero-gestation.

Meigs in his *Diseases of Women* (1879) easily disposes of one school of physiologic thought: "It is against physiology, against pathology, and it flies in the face of common sense, to talk of a collection of wind distending a material like the womb. Air is too subtle to remain quietly locked in a bottle that has no cork in it."

Gradually the pendulum overbalanced to the "mechanism of neurosis" wherein guilty serving girls and guilty wives built up case after case.

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This passed the extreme phase soon, however, and Charcot (Bouchacourt,[8] 1892) said, "Hysterical, no; mental, yes." Maryanchik[9] (1894) indicted the obesity of the rich as well as the flatulence of the poor. Mitchell[10] (1895) wrote, "Women suffering from pseudocyesis are in no sense of unsound mind, nor is their illusion to be classified with the delusory and obstinate belief as to their pregnancy held by some of the insane." Of the childless woman at the climacteric, he wrote, "The illusion of pregnancy in such females is a flattering one."

Donald[11] (1897), of London, divided phantom tumors into five classifications: those associated with pelvic peritonitis, the normal climacteric period, a pathologic menopause, amenorrhea and a rapid development of fat in young women as a symptom of pure hysteria. Janet,[12] Lemesle[13] and Le Menant[14] all emphasized the correlation with hysteria and neuroses. Pohl[15] (1901) believed that knowledge of the symptoms of pregnancy was essential in the development of the entity. Berkeley[16] (1922) explained the mechanics of the abdominal distention thus:

> Diaphragmatic contraction, pressing down upon the abdominal contents and making them bulge. . . . It might be supposed that this diaphragmatic spasm is really voluntary, but there is no doubt it is not entirely so. No person could voluntarily keep up such a muscular effort as is required to produce the enormous swelling seen. It is strictly a condition in the same category as hysterical fixation of a joint.

Haultain[17] (1926) gives the cause as "reflex nervous" from mental perversions met with in sterile women at menopause, in women newly married who are desirous of offspring, and in the unmarried women who have had illicit intercourse; other "reflex nervous" causes are from diseases of the generative organs, such as fibroids, ovarian cysts and ascites. Williams[18] (1924) wrote: "Occasionally women, usually at about the time of menopause, develop abdominal enlargement and, wishing for pregnancy, get a firm idea that this has occurred. The symptom complex of amenorrhea (due to menopause), enlarged abdomen (due to deposition of fat plus hysterical depression of the diaphragm), sensation of fetal movements (consciousness of intestinal movements), and so forth, can easily delude a woman."

In 1814 Joanna Southcott, a sixty-four-year-old virgin prophetess, announced herself with child by the Holy Spirit. Gooch[19] (1859) quotes her physician, Dr. Reece, as writing, "When these symptoms [enlargement of the breasts and abdomen] were accompanied by a sensible motion of the womb, I could never hesitate in pronouncing it a case of pregnancy, and this was actually my opinion of her situation." Eminent opinion was divided. Her followers, some hundred thousand, awaited their new Messiah joyously. Two months after the date set for her confinement, Joanna died. An autopsy was performed in the presence of fifteen physicians, and there was no trace of the tumor that Joanna had felt during her life.

A number of interesting stories are told — one of a young man who was forcibly married by his bride's brothers. The young man's rage was reported as "boundless" at discovering that he had been compelled to marry her on a false supposition. Poetic justice was dealt a number of "seducers" in the past according to tellers of the obviously enjoyed cases.

Many writers suggest that the final factor of the symptom-complex is a physician who mistakenly confirms the patient's hopes, fears, or suspicions!

Etiology

Each writer on the subject has contributed a somewhat different explanation. The older writers lean toward physiologic explanations, whereas the more recent point out the possible psychogenic basis.

Bivin and Klinger[1] (1937) have collected all the 425 cases appearing in the literature, — excluding mental and physical disease, — and have added 19 cases. Their study is complete, and their figures on these 444 cases are most interesting. The statistical review of their cases gives the youngest patient as seven years of age, the oldest as seventy-nine. The greatest incidence was found during the period of active reproductive power, an average age of thirty-three representing the midpoint of distribution. Sixty-five per cent were found between the ages of fifteen and forty; whereas in the menopausal group of from forty to fifty years, only 16.7 per cent were found, contrary to the usual belief. Eighty-three per cent were married; 14.6 per cent were unmarried; 2.3 per cent were widowed. The condition was most frequent in second marriages, particularly if the first had been a sterile union. Only 37 per cent had had previous pregnancies, and some of them had had many pregnancies. No particular race, creed or group was implicated. Included in the cases are the names of Mary Tudor, Queen of England, the wife of a French president, and a queen of Serbia. Only one case in a Negress was reported.

The more recent writers believe that this problem is more frequent in the emotionally unstable group. A few of Bivin and Klinger's cases went on to frank mental degeneration, but the majority were reasonably normal. The grim incredulity with which the true diagnosis is resisted is pointed

out as proof of an underlying psychogenic defect. The tenacity with which these patients go from doctor to doctor hoping for an encouraging diagnosis, the enthusiasm with which they prepare the *impedimenta* for their hopes, and the scorn in which they hold the luckless physician who pronounces the adverse opinion, are characteristic. Reports are given of three patients who persisted in their belief for eight, nine and eighteen years. However, the confidence of the large majority is shaken severely when the supposed gestation is prolonged over the tenth or eleventh month.

About 25 patients went through a normal pregnancy after having gone through a period of false pregnancy. Other cases in which interrupted pregnancies were continued as false pregnancies are noted. A few cases of multiple false pregnancies were reviewed; one patient had four, only to follow them with a fifth normal gestation. Several cases of pseudocyesis were overlooked because the examining physician could not exclude immediately an ectopic gestation. An embarrassing few have gone from a supposed pregnancy to a real one.

The main psychologic factors involved in these cases were desire, fear, hysteria, suggestion and autosuggestion. No one factor was present in all patients.

Symptoms

It is now generally agreed that the patient need not have experienced a previous pregnancy for this diagnosis to be considered seriously. Only 37 per cent had had previous pregnancies in Bivin and Klinger's[1] series. The symptom-complex of pseudocyesis mimics in great detail true pregnancy.

In their review of the symptoms encountered in these cases, Bivin and Klinger found menstrual disturbance, particularly amenorrhea, the most frequently recorded symptom. This is statistically no more frequent than that in any age group. The amenorrhea, fatty deposition and constipation of menopause are an often-repeated triad. Emotion, menopause and endocrine disturbance are cited in explanation.

Enlargement of the abdomen was next in frequency, usually simulating that commonly associated with true pregnancy. The rate of enlargement often follows that of normal gestation. Flatus, constipation, fatty deposits in omentum or abdominal wall, a full bladder, retention of urine, diaphragmatic spasm (hysterical) and muscular contraction, are given as possible explanations. Breast changes, including secretion, change in the size and character of areola, pigmentation and fullness, are noted. DeLee[20] pointed out that the breast signs have no significance in old multiparas, since the breasts are enlarged and often contain milk for years. One investigator blandly explained that because milk was dried up by the stresses of some emotions, it would be logical to assume that other emotions could encourage production. The physician usually has no basis for comparison, but one patient, an artist, supplied her physician with hand-painted pictures of the changes of her breasts as reflected in her dressing mirror. Multiparity, pituitary dysfunction and menopause are offered as explanations for these phenomena.

Gastrointestinal symptoms, such as nausea, capricious appetite, constipation and vomiting, are common complaints. Fetal movements are of interest, for observers are impressed by the fact that those which the patients report are of unusual vigor, usually out of proportion to the supposed stage of gestation. Misinterpretation of normal somatic sensations ordinarily disregarded is the commonest explanation of such symptoms. Fetal heart sounds are reported rarely, a phenomenon probably due to abnormal transmission of a disordered maternal pulse. The duration of pseudocyesis in the great majority of cases is nine months, although some go ten or eleven months before suspicion is raised. Already cited have been three cases prolonged to eight, nine and eighteen years respectively.

Diagnosis

Pajot[21] states, "There are no false pregnancies, there are only false diagnoses." In 161 cases of Bivin and Klinger's series, one or more physicians were deceived by the signs or symptoms of their patients. Barnes[22] counseled watchful waiting for a month to see if the issue cleared — either by frank progress of gestation or by subsidence of the symptoms. He referred the matter to "Time, the great solver of mysteries." Certainly there is no doubt that an incorrect diagnosis is a powerful factor in convincing an uncertain patient, and an equally potent one in disconcerting her medical attendant. Failure of the physician to produce concrete evidence in the ninth month removes this question from the medical field.

Some writers believe that it is difficult to differentiate true from false pregnancy. Caution in any patient whose story and physical findings are at variance will diminish the possibility of many unfortunate errors. The physiologic changes found in the breasts, cervix, vagina and uterus are never faithfully copied from pregnancy, but are only mild changes in that direction. One important sign is universally emphasized: the umbilicus is not the pouting one of gestation, but is the depressed umbilicus of the nongravid state. This,

combined with the alleged astonishing vigor of the fetal movements, should arouse suspicion.

The biologic tests of pregnancy are obviously of value in questionable cases. Roentgenography, if gestation has progressed sufficiently, is of aid, although confusion may arise from calcification within a fibroid, bowel contents, and so forth. Final resort is made usually to examination under anesthesia. Steady pressure under anesthesia will reduce the abdominal distention, with release of diaphragmatic spasm, and the passage of flatus. Occasionally, as the patient recovers from anesthesia, the distention recurs. Simpson in his *Diseases of Women* (1871) recounts the case of a Scottish peasant woman in her thirteenth month of pseudogestation. She refused to be convinced that she was not pregnant. Simpson put the woman under anesthesia and called her sister, who felt the spine through the collapsed abdominal wall. As the patient recovered, the distention reappeared, and she awakened to find no change in either her condition or her convictions. Her sister quieted her, "Hauld your tongue, woman, you've nothing in your wame for I felt your backbone myself with my ain hand."

Treatment

Whatever method has been devised to meet best the individual problems of the case is effective. Present-day methods are aimed at relieving by psychotherapy the patient's conviction that she is pregnant. Many women, however, will not countenance the diagnosis, seeking further medical advice, and usually leaving the first consultant without either fee or thanks. Bivin and Klinger[1] listed other methods, including informing the patient of her true state (56 cases), the use of anesthetics (50 cases), drugs such as morphine, opium, emmenagogues, and tonics (47 cases), purgatives (22 cases), hypnosis suggestion (19 cases), baths, curettage, operation, massage-pressure, catheterization, placement of uterus and psychotherapy.

Case Reports

The following are the clinical histories of the 7 cases of pseudocyesis that occurred in the Boston Lying-in Hospital from 1927 to 1940. Search through the records of the Free Hospital for Women in Brookline, Massachusetts, failed to bring forth any additional cases. It is admittedly not a rare condition, although only 444 cases were reported by Bivin and Klinger from the time of Hippocrates until 1937. This infrequent recording of the disease may be due to lack of interest in the last three decades, to better methods of diagnosis in pregnancy or to a subtle change in the feminine vapours.

Case 1. M. C. (No. 38192), a 31-year-old para V, had had three miscarriages. One year before entry, a cesarean section was performed at another hospital, and a dead baby extracted. Previous catamenia had been regular each month, but were scanty, lasting 3 days, with some dysmenorrhea. The last flow had begun on January 9, 1927. The patient was first seen in the clinic on July 18 with an expected confinement date calculated for October 16. The symptoms included morning nausea with occasional vomiting, epigastric fullness and pain, dizziness and a "pregnant feeling inside." She had felt fetal movements in March, when she would have been about two months pregnant by dates. She had begun to flow a small amount just before entry, and was firmly convinced that she was aborting.

Physical examination was essentially negative. The breasts were small, and without secretion. The uterus could not be felt abdominally, and the abdomen was flat. The fetal heart was not audible. On vaginal examination, the cervix was firm, closed and lacerated. The fundus was posterior and of normal size. Vaults were clear. The flow was menstrual in type.

Treatment consisted of informing the patient that she was not pregnant, that she might have miscarried, and that this was a scanty period after amenorrhea for six months. This information was not well received. The patient did not again visit the clinic.

Case 2. S. R. (No. 41331), a 41-year-old para III, had previously had two normal full-term deliveries, the last 11 years before entry. Both children had died within the first year of life. The last period began on February 13, 1928, and by dates, confinement was expected November 20. The patient first presented herself on November 26, believing herself to be beyond term, with bleeding. She had noted amenorrhea, nausea in the early months and abdominal swelling that progressed with gestation, and she was convinced of her pregnancy. In the fourth month she thought that she felt fetal movements. On November 19, she had slight painless bleeding of two days' duration. On November 24, she had indefinite abdominal pains, mostly about the umbilicus, which she interpreted as labor pains, and which brought her in to the clinic six days beyond her expected date of confinement. Physical examination of the breasts was negative. The abdomen was very obese, and a mass rising 26 cm. above the symphysis was noted, although it was poorly demarcated. The fetal heart was not heard. The patient seemed to be having mild labor pains. Because of the story of bleeding she was not immediately examined vaginally. X-ray examination revealed no fetal bones. Examination under anesthesia confirmed the diagnosis of pseudocyesis, because the findings were those of an atrophic uterus. She was informed of her nonpregnant state. "Labor" ended spontaneously. She did not revisit the clinic.

Case 3. I. S. (No. 5625), a 44-year-old para V, had had four previous miscarriages at 3 to 4 months, the last occurring 1 year before entry. Catamenia were essentially normal until February 17, 1931, when she lost "two quarts of blood." She had no further flow until July 18. Over this period of amenorrhea, she noted abdominal enlargement, and was confident that she was pregnant, the expected date being November 24. On July 18, she had a little bright staining, fainted and was brought to the

clinic because she thought that she was aborting. Physical examination of the breasts was negative. No fetal heart was heard. No definite distention or mass was made out, although she had a large panniculus. On pelvic examination, the uterus was small and anterior, with a closed, firm cervix. There was a slight thickening in the left vault. X-ray study and an Aschheim–Zondek test were negative. It was not difficult to convince her that the menopause was starting in.

Case 4. F. F. (No. 18229), a 27-year-old para IV, had had three full-term deliveries, the last two years before entry to the clinic. Her last period began on May 14, 1937, and confinement was expected February 21, 1938. She had noted 5 months' amenorrhea and progressive abdominal enlargement. In the 5th month she stained slightly and came to the clinic with a suspected miscarriage. Examination of the breasts was negative. Abdominal examination revealed the fundus at the height of a 5 months' pregnancy. No fetal heart was audible. The patient was not examined vaginally for 6 days or until bleeding had stopped. At this time, the fundus was found to be only slightly enlarged, with a bluish, firm, hard cervix. The patient was observed for another month, with no change in the physical findings and with resumption of the normal menstrual cycle. Her conviction of pregnancy was considerably shaken by subsequent menstruation.

Case 5. M. D. (No. 3240), a 40-year-old para XIII, was first seen by the author in 1940; the patient was in bed at home, complaining of nausea, vomiting, lower abdominal cramps and bleeding, after amenorrhea of 7 months. She was convinced that she was 6 or 7 months pregnant. The breasts contained secretion, but the areolas were not typical of pregnancy. The abdomen was greatly scarred from three previous abdominal operations, and palpation was difficult because of a large ventral hernia. One observer felt a diffuse mass rising to a height consistent with her presumptive confinement. No fetal heart was heard. On vaginal examination, the uterus was atrophic and fastened to one of the abdominal scars. The adnexa were normal. Bleeding was distinctly of menstrual character. When the author raised doubts as to pregnancy, the patient indignantly marshaled her family. She pointed to one child, saying, "That was a fibroid tumor at the —— Hospital." Pointing to another, she said, "That was four negative A–Z tests at —— Hospital." Indicating still another, she confounded the observer with, "That one was a negative A–Z test at your hospital!" Furthermore, the patient volunteered that she had never felt fetal movements with any of her pregnancies, but only a "wave," which had been present in this "pregnancy," that she had never had any labor pains and that she had had regular cyclical menstruation throughout all her pregnancies. The difficulty of convincing her that she was not the victim of a similar medical plot on this occasion was indeed great. She was still not convinced, for she made subsequent visits to the hospital within a month after her flow stopped. There was no change in the physical findings.

On going into her history, however, it was found that none of the above statements could be verified, although in 1936, while she was under the care of a psychiatrist for treatment of a proved spurious pregnancy, she surreptitiously became pregnant, and delivered about six months after the psychiatric cure had been effected. Study of hospital records of her previous prenatal courses and deliveries showed that she had had the usual amenorrhea of pregnancy, had felt fetal movement, and had delivered in pain, despite her memories to the contrary. Her firm conviction of pregnancy was perhaps a wifely tribute to her husband's powers.

Case 6. A. E. (No. 20910), a 29-year-old para IV, entered the clinic on January 15, 1940, with a story that her last period had begun on November 13. She had felt swelling of the breasts and heaviness of the abdomen. The morning before entry she noted uterine cramps and flow commenced, facts which she believed to be due to a miscarriage, although no tissue was passed. Examination of nipples and breasts was negative. There was slight abdominal distention. The uterus was felt two fingerbreadths above the symphysis. She was treated for a threatened abortion for 1 week, when the bleeding stopped. It was thought that her flow might be menstrual. She again flowed on February 14, but this time without cramps.

She was followed in the clinic until April 29, at which time her gestation should have been at 5 months. The patient was firmly convinced of her pregnancy, had gained 7 pounds in weight, noted constant lower abdominal swelling, felt "pregnant" but had not observed fetal movements. Pelvic examination at this time showed a normal uterus, with no evidences of pregnancy. She persisted in her delusion, however, and was examined once again a month later to settle the matter. It may be that she did miscarry in the second month, but followed this with her spurious gestation.

Case 7. H. L. (No. 60739), a 26-year-old para II, was first seen on May 11, 1940. This was in the seventh month of the patient's second marriage, and she desired a child very much. She had missed her February period, but had had flow each month thereafter, having just completed the period before her visit to the clinic. She had noted progressive abdominal enlargement, and her profile was that of a 5-month gestation. There had been a 20-pound gain in weight, swelling of the breasts, nausea, and vomiting, usually at night. Both the patient and her husband had been greatly impressed with the vigor of the fetal movements when each nightly palpated the maternal "belly."

Physical examination revealed nongravid areolas and breasts. There was no 5-month abdominal tumor. The umbilicus was depressed. The vaginal mucous membranes were not cyanotic. The uterus was firm and of normal size and consistence. Menstrual blood was issuing from the cervix.

She received the diagnosis of spurious pregnancy with contempt, and asked for laboratory confirmation. However, she consulted another physician, who concurred in the diagnosis. She ultimately capitulated.

Summary

Pseudocyesis or spurious pregnancy is a clinical entity that has existed unchanged in its symptomatology since Hippocrates first described it. Explanations of etiology mirror the medical thought of each generation, from the old physiologic explanation of "wind in the womb" to the newer concept that places the syndrome on a psychogenic basis. The only additional aids to diagnosis have been the employment of roentgenography and of the biologic tests of pregnancy. Neither of these supersedes caution on the part of the physician in diagnosing pregnancy. Today's treatment is identical with that of our medical forebears, except that it is garnished with psychotherapy.

Seven cases are presented in detail from the records of the Boston Lying-in Hospital covering the years 1927 to 1940.

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THE MANAGEMENT OF PRE-ECLAMPSIA*

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IN DISCUSSING the management of pre-eclampsia, it is essential to reach some common understanding relative to a definition of the so-called "toxemias of pregnancy." In October, 1937, at the suggestion of Dr. Foster Kellogg, of Boston, a committee was appointed by the American Committee on Maternal Welfare to attempt to secure a uniform classification of the toxemias of pregnancy. This committee has reached a tentative classification, which may be modified more or less as time goes on. According to the committee's report,[1] the main headings consist of: hypertensive disease; renal disease; pre-eclampsia, mild; pre-eclampsia, severe; eclampsia; vomiting of pregnancy; and unclassified toxemia. These are covered in the following outline:

A. Disease not peculiar to pregnancy
   - I. Hypertensive disease (hypertensive cardiovascular disease)
     - *a.* Benign (essential), mild, severe
     - *b.* Malignant
   - II. Renal disease
     - *a.* Chronic vascular nephritis or nephrosclerosis
     - *b.* Glomerulonephritis
       - (1) Acute
       - (2) Chronic
     - *c.* Nephrosis
       - (1) Acute
       - (2) Chronic
     - *d.* Other forms of severe renal disease

B. Disease dependent on or peculiar to pregnancy
   - I. Pre-eclampsia
     - *a.* Mild
     - *b.* Severe
   - II. Eclampsia
     - *a.* Convulsive
     - *b.* Nonconvulsive (that is, coma with findings at necropsy typical of eclampsia)

C. Vomiting of pregnancy

D. Unclassified toxemias

I shall not discuss the management of any of these conditions except those falling under pre-eclampsia. Concerning this condition, the report contains the following remarks:

> *Pre-eclampsia, mild.* Mild pre-eclampsia is the term applied to that condition which may or may not arise during pregnancy, almost always after the twenty-fourth week, characterized by a moderate rise of the systolic blood pressure to about 140 to 160 mm. of mercury and a diastolic blood pressure of 90 to 100 mm. of mercury. The urine contains less than 0.6 gm. of albumin per 100 cc., and the edema is usually slight and rarely may be absent. Usually no changes are demonstrable in the retinal arteries. Many of these patients have a latent hypertensive tendency. Few of them experience the severe pre-eclampsia, and fewer still have eclamptic convulsions. However, there are as yet no

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certain clinical or laboratory methods of determining the potentially eclamptic cases among the patients with mild pre-eclampsia.

Pre-eclampsia, severe. A condition which usually becomes evident after the twenty-fourth week of pregnancy, is characterized by a sustained systolic blood pressure of more than 160 mm. of mercury and usually a diastolic blood pressure of more than 110 mm. of mercury. Usually accompanied by the passage of more than 0.6 gm. of albumin per 100 cc. of urine. The edema is severe in most cases and usually hypertensive changes may be observed in the retinal arteries. In spite of the treatment there is a tendency for the blood pressure to rise, even when the edema may have decreased. Many patients present one or more of the symptoms of impending eclampsia, such as headaches, olurred vision, epigastric pain, vomiting, torpor or irritability.

Eclampsia is probably the same disease as severe pre-eclampsia, but in addition is accompanied by convulsions. Rarely, patients with severe pre-eclampsia who die in coma without convulsions show findings at necropsy identical with those of eclampsia.

In the textbook[2] of obstetrics and gynecology that was published under my editorship, toxemias of pregnancy were classified as follows:

I. Nonconvulsive toxemia of pregnancy
   A. Acute (pre-eclampsia) (46 per cent)
   B. Chronic (vascular-renal disease) (48 per cent)

II. Convulsive toxemia of pregnancy (6 per cent)
   A. Acute (eclampsia)
   B. Chronic (uremia)

Under the heading "Nonconvulsive Toxemia of Pregnancy," the following statements are made:

> This group comprising from 75 to 95 per cent of all toxemias, is composed of those who have edema, hypertension or albuminuria during pregnancy, labor or the immediate puerperium. It includes patients in whom these symptoms develop during pregnancy and also a large group of patients in whom these symptoms and findings become marked during the pregnancy. If the patient has been previously under observation, it is possible to know whether the toxemia is acute or chronic, but if not, then it may be possible to determine this from the history and findings.

Under the heading, "Pre-eclampsia or Acute Nonconvulsive Toxemia of Pregnancy," it is stated:

> This disease differs from eclampsia in that neither convulsions nor coma occur. The mild type is variously designated as the kidney nephrosis, albuminuria or edema (hydrops gravidarum) of pregnancy, and there are, as a rule, few subjective symptoms. The severe type — eclampsismus or eclampsism — implies that the patient has marked subjective symptoms, and is on the verge of convulsions or of coma.
>
> The typical case usually shows an excessive or rapid increase in weight. If the urines are obtained under standard conditions and sufficiently sensitive tests are used, an albuminuria will probably be found fairly early, perhaps before the change in weight is apparent. The blood-pressure begins to rise, and since an increase from a systolic of 90 to one of 125 is just as significant as an increase from 125 to 155, it is important to know the basic pressure. The maximal normal systolic blood pressure is arbitrarily placed at 129 mm. If the patient is over thirty, some allowance must be made for her age. Practically all patients with pre-eclampsia begin as mild cases and the condition may remain stationary or progress slowly. Usually, however, the signs increase, and as the condition grows worse, further subjective symptoms appear which indicate that it is likely to change from the nonconvulsive to the convulsive or eclamptic type.
>
> The patient may have one, two or the whole triad of symptoms of nonconvulsive toxemia in varying degrees. Thus, one patient may have only a marked edema, another an albuminuria, and a third perhaps only a hypertension. If increased blood-pressure is the only finding, the condition is probably one of essential hypertension.

One has to recognize that a clear-cut distinction between these different conditions is often extremely difficult. The symptoms are not characteristic, nor are the findings pathognomonic for any one condition. There is overlapping between the various groups. The mild type may pass into the severe, and the severe may pass into the eclamptic. There is also confusion and difficulty in differentiating hypertensive disease, pre-eclampsia, and the acute and the chronic conditions. About the only way that this can be done satisfactorily is by following the patient not only throughout the course of the pregnancy but also during the subsequent post-partum period for a number of months or even of years. It is often of help to know the antecedent history of the patient, and frequently, if it is possible, it is extremely helpful to know what the status of the patient was prior to the existing pregnancy. Often the history of the course of events in preceding pregnancies is helpful in making the diagnosis. Thus a patient can give a history of having had antecedent renal or vascular diseases either in the nonpregnant or in the pregnant state; this helps differentiate pre-eclampsia from eclampsia and other forms of so-called "toxemia of pregnancy."

Stander[3] in a recent article approves the classification adopted by the American Committee on Maternal Welfare and accepts Kellogg's term, "mild pre-eclampsia," as a substitute for the designation, "low-reserve kidney," proposed by him earlier. His criteria were hypertension of less than 150 systolic, 90 diastolic, which resumes the normal level after the puerperium, and albuminuria of less than 2 gm. per liter, which rapidly disappears in the post-partum period. There is nothing abnormal in the clinical constituents of the blood or urine, and subsequent pregnancies are

usually free of this condition. Stander gives the incidence of mild pre-eclampsia as 47 per cent, severe pre-eclampsia as 7 per cent, and eclampsia as 4 per cent in 104 toxemias occurring in 1503 pregnancies. Stander[3] and Dieckmann and Brown[4] found toxemia in as high as 10 per cent of pregnancies, about half of which fell in the pre-eclamptic group.

Evidence points to the fundamental identity of mild and severe pre-eclampsia with eclampsia. The major difference is in the intensity of the symptoms and findings. The onset of the convulsion or coma places the patient in the eclamptic group, unless these are caused by kidney disease resulting in uremia. No specific symptom or sign places these patients in the pre-eclamptic group. One must evaluate these cases from the available history and findings and decide whether they fall into the pre-eclamptic, the hypertensive or the vascular-renal group. The criterion that places them in the category of pre-eclampsia is a history of freedom from symptoms prior to or early in the pregnancy or in previous pregnancies.

The following findings are of diagnostic significance. Edema and weight gain are important when they are rapid or excessive. A definite but moderate gain in weight within a few days means more than a greater gain over a longer period. The normal patient may gain 20 to 25 pounds during pregnancy, but one whose weight has increased 2 or 3 pounds in a few days or a week should be regarded with great suspicion. Urinary findings of persistent albuminuria and increased number of formed elements are significant. A rapid or slow increase of blood pressure after the twenty-fourth week is indicative of pre-eclampsia. It is the increase that is significant. The rise of systolic pressure from 90 to 130 is just as important as one from 110 to 150. Insufficient attention is paid to the diastolic pressure, which is less variable than the systolic. The cerebral, visual and gastro-intestinal symptoms are the danger signals showing the beginning of a severe toxemia. Urinary output in a diminishing quantity suggests strongly a disturbed water metabolism or impaired kidney function in the presence of a normal intake.

One may state that there is no specific treatment for pre-eclampsia unless the termination of pregnancy can be so regarded. If one were in a position to disregard the fetus, this would be the indicated procedure, which has two main objections: one is that no pregnancy resulting in fetal loss has been worth while; the other is that the artificial termination of pregnancy carries a danger to the mother and to the fetus alike. In the management of these patients, one is confronted with the problem of safeguarding two beings, the mother and the fetus, whose best interests are frequently in conflict. That which is safer for the one may carry danger to the other.

In the management of the toxemias of pregnancy, there are two main viewpoints. First, one must consider the management of pregnancy, and secondly, it is necessary to treat the toxemic state. So far as the management of the pregnancy is concerned, I believe I should discuss my attitude toward the prevention of the pre-eclampsia. Since one cannot foresee the development of pre-eclampsia in a woman who has never been pregnant, this problem is present only in those patients who have had a previous pre-eclampsia or eclampsia.

There are no clear-cut criteria by which these various conditions can be differentiated, because hypertensive disease may first reveal itself during pregnancy, and because vascular-renal disease may also first be discovered during pregnancy. Another factor of importance is that the pre-eclampsia or eclampsia may so damage the cardiovascular-renal system of the patient that she does not subsequently recover. The amount of permanent damage done to the organs has not yet been determined, since there are no adequate criteria for judging the amount of anatomic or physiologic injury. I am of the opinion that the duration and the severity of the disease in a pregnant woman are the determining factors, and that a protracted course, even though apparently mild, does more damage than a severer but shorter attack of pre-eclampsia or even of eclampsia.

Attempts have been made to follow the patients during subsequent months and years, and there is no doubt that they have less subsequent interference with the functional capacity of their organs than those who have hypertensive or vascular-renal disease. However, I know of no study that has satisfactorily correlated the duration and severity of pre-eclampsia and eclampsia with subsequent events. One must remember that in pre-eclampsia one is dealing with an acute condition that may or may not lead to full recovery. In hypertensive and vascular-renal disease, one is confronted with an established disorder, which may be alleviated and arrested but cannot be cured.

Obstetricians are frequently handicapped by the fact that they have to rely almost entirely on the patient's history of the course of events in a previous pregnancy. If the patient gives a history of a previous toxemia, one should first attempt to establish the integrity of her organs. Before again becoming pregnant, she should be in good general health and free of symptoms of cardiovascular-renal disease, that is, the blood pressure, renal function and eye grounds should be normal. Very simple renal functional tests are total output and

ability to concentrate the urine; a urea-clearance test may be done. It is difficult to know whether persistent changes of this character have been caused by some pre-existing disease, such as hypertension or vascular-renal disorders, or whether they have resulted from a pre-eclamptic or eclamptic attack; nevertheless, so far as future pregnancies are concerned, unless these conditions can be cleared no subsequent pregnancies should be permitted, because all of them are aggravated by a subsequent pregnancy. It should, however, be recognized that pre-eclampsia and eclamptic conditions are less apt to be followed by permanent damage than the vascular-renal disorders, which once established are apt to be persistent.

One must also consider the proper attitude toward a condition of this kind that manifests itself early in pregnancy. It is only in exceptional cases that pre-eclampsia appears before six months' gestation, so that the question of the termination of the pregnancy rarely arises before that period. When any of these signs and symptoms occur prior to that time, the weight of evidence favors either hypertensive or vascular-renal disease rather than a pre-eclamptic state. Any progressive condition of this sort that develops early in pregnancy should lead to the termination of the gestation; otherwise the mother's condition is aggravated, she is apt to suffer permanent damage, and the chances for securing the survival of a viable fetus are not good. There is also the threat of antepartum fetal death, especially in the vascular-renal type of the disease.

The objectives of management are to prevent maternal and fetal deaths and to avoid serious or permanent damage to the tissues and organs of the mother. To state the problem in different words, every effort should be made to protect the health of the mother and to secure a viable, living fetus. This fetus should be sufficiently mature to have a reasonable chance of surviving the neonatal period. To protect the mother, one must detect the condition early, watch its course closely and manage it from the interest of both the mother and the fetus. It must be remembered that no prospective mother is completely satisfied, at least psychologically, unless she has a living baby. One must never forget that although many women do not have a recurrence of this condition in a subsequent pregnancy, nevertheless, all things considered, the existing pregnancy is the most favorable one for securing a living baby. There are no absolute criteria for determining the best course to follow for either the mother or the fetus. The final decision rests on mature judgment derived from the careful evaluation of the symptoms and findings and the progress of the disease. There is no specific treatment for this condition. The management is, therefore, largely symptomatic and consists mainly of watchful expectancy under the most favorable possible conditions, for the mild case may become severe, and the severe may become eclampsia. Because the rate of progress is by no means uniform, one must watch the course of events very carefully. A mild pre-eclampsia, or even a severe one, may never develop into an eclampsia. On the other hand, a fulminating eclampsia may develop with relatively scant evidence of a transient pre-eclampsia. It is interesting to note that whereas the incidence of eclampsia has been reduced, there has been no evidence to prove that pre-eclampsia has diminished. One must therefore conclude that in all probability the eclampsia was the result of the neglect of the pre-eclamptic condition. There is little evidence that the dietary and other management of pregnancy has reduced the incidence of the condition, although it is quite possible, in fact probable, that its severity has been ameliorated by proper ante-partum management. There is no specific preventive treatment for pre-eclampsia. One should endeavor, however, to maintain the patient in the best possible physical state by securing optimal nutrition and hygiene throughout the course of the pregnancy. She should receive proper nutrition, adequate rest and recreation and should have good elimination, in other words, normal health habits. It would, of course, be better to have the patient in the best physical condition before pregnancy occurred. After conception, every effort should be devoted to relieving symptoms, such as nausea and vomiting, and to correcting nutritional abuses and faulty habits of living. Even though one is unable to prevent the development of a pre-eclampsia, the patient would be in better physical condition to withstand the development of this disease.

The important triad of symptoms and signs are: increase in blood pressure; development of edema shown either by sogginess or pitting of the tissues and by rapid increase in weight; and development of an albuminuria.

When any of the symptoms or signs of pre-eclampsia develop, a more rigid regime should be instituted and should vary with the severity of the signs and symptoms. The diet should be restricted, and should consist, so far as possible, of fruits and vegetables with a moderate amount of protein — in other words, a maintenance protein intake. A salt-poor or salt-free diet should be given. The fat should also be restricted; preferably no fat other than milk fat should be used. Lean meats and eggs may be used. No fried foods or pastries should be given. Fish, pork and veal should be eliminated from the diet. The protein

intake should be about 60 gm., with approximately 30 gm. of fat and 400 gm. of carbohydrate, a total of about 2100 calories a day. Fresh vegetables may be used in the form of salads, but oil dressings should be omitted. In severe cases, the diet may be further restricted for a week to fruit juices with sugar and possibly some skimmed milk — about 1200 to 1500 calories. In mild cases, rest at night of eight hours, with one or two hourly periods of rest during the day, may be sufficient. Sedation may be required to secure adequate sleep, the barbiturates being preferable. Urinary output should be watched, and gastrointestinal elimination should be secured. When the patient is placed at bedrest, an apparent disappearance of the edema should not be confused with a shift in the edema to the dependent portions of the body. In the severer cases in which there is marked edema or anuria, the fluid intake and output should be closely watched, and if necessary intravenous injection of 10 to 20 per cent glucose should be utilized to promote diuresis. If the patient fails to respond favorably to this treatment of rest, diet and elimination with sedation, it is necessary to decide promptly whether to terminate the pregnancy.

If the condition remains stationary so far as the symptoms and signs indicate, more time may be allowed for reaching a decision. One good rule to follow is that when there is nothing to gain for the fetus, the health and life of the mother should not be imperiled by delaying the termination of the pregnancy. In the pre-eclamptic state, there is little danger of ante-partum death of the fetus. The main causes contributing to the fatalities of the fetus and the newborn are mechanical induction of labor, artificial termination of labor other than cesarean section, and previable or early premature births. The outlook for the fetus is always better if the onset of labor is natural and its termination is without unnecessary interference. There is little evidence that low-forceps operation or delivery by cesarean section is an increased hazard to the fetus, although it may be to the mother.

The period of gestation at which hypertension, edema and albuminuria with visual and other symptoms develop naturally determines somewhat the course to be pursued. If these symptoms develop before the twenty-fourth week of gestation, there is little to be accomplished by delay unless they disappear very rapidly under appropriate treatment. If they appear after the twenty-fourth week in a severe form with no response to treatment within a week, the pregnancy should be terminated; if in a mild form, expectant treatment may be used. If the mild condition is progressive, pregnancy should also be terminated after a week or ten days of adequate treatment without improvement. In a patient with a progressive pre-eclampsia, either mild or severe, that occurs earlier than two weeks prior to fetal viability, expectant treatment is contraindicated, especially in those cases in which there is no improvement within a week of adequate treatment. In pre-eclamptic patients in whom the fetus is dead or previable, the termination should always be from below. It usually requires some mechanical form of induction, such as rupture of the membranes, the use of a bag or Willett's forceps, or vaginal hysterotomy. When the fetus is previable or dead, destructive operations are not necessarily contraindicated.

When the pregnancy has reached a period verging on fetal viability, the problem is often complicated and difficult to answer. An attempt to prolong the gestation in the interest of the fetus should be made if it can be done without imperiling the health and life of the mother. When the pregnancy has reached term, there is little to gain for the mother by prolonging the gestation, and every effort should be made to have the pregnancy terminated prior to the development of a severe pre-eclampsia or an eclampsia that materially increases the hazard for both the mother and the fetus, because under those circumstances one has to deal with an emergency situation. The best outlook for both mother and baby is obtained when there is a natural onset of labor with as nearly natural a termination as possible. If it is possible to prolong the gestation until the cervix is soft, a medical induction with castor oil and quinine may be sufficient to initiate labor. Pituitary extract for the induction of labor should be used with extreme caution in toxic patients. A second attempt at medical induction may be made when the first one fails. There usually should be an interval of at least a day between attempts at medical induction. Mechanical induction consists in simple rupture of the membranes, the introduction of a bougie or bag or the use of Willett's forceps, which is not advised except in cases of previable or dead fetuses. Braxton-Hicks version may also be tried, but it is a dangerous procedure so far as the fetus is concerned and should not be employed except in cases of previable or dead fetuses. When the cervix is not soft, mechanical induction of labor is accompanied by a very high fetal mortality and some risk to the mother. Every effort should be made to carry the mother to the period when the cervix is soft so that the medical induction has a fair chance of being successful. When the necessity for terminating the pregnancy is urgent and the cervix hard, one is confronted with the serious problem

of deciding between the mechanical induction of labor with danger to the fetus or the possibility of doing a cesarean section with relative safety to the fetus. The latter should be done only in those cases in which the outlook for the fetus is excellent and in which the environmental conditions are such that it can be done with great safety to the mother.

Many other factors, such as age, parity, fertility, personnel and environment, have more or less weight in determining the final decision. These patients can be best cared for only by adequate preconceptional, ante-partum, intra-partum and post-partum care in the office, the home and the hospital. The danger to the mother entails risk to the fetus, which arises not from the toxic state itself but from the procedures used to terminate the pregnancy. The management of toxemias should be designed to preserve the health and lives of both the mother and the fetus and should consist in the judicious use of medical and obstetric procedures at the proper time and place and in the approved manner.

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MEDICAL PROGRESS

ETIOLOGY AND TREATMENT OF URTICARIA: DIAGNOSIS, PREVENTION AND TREATMENT OF POISON-IVY DERMATITIS

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URTICARIA

URTICARIA should be thought of not as a disease manifesting itself solely in the skin but as a process capable of involving many other structures and organs of the body. Typical urticarial wheals have been demonstrated in the stomach by gastroscopic examination. Involvement of the throat or larynx is not rare and creates an emergency situation in some cases. Apparently, urticarial swellings may occur wherever loose connective tissues exist. On the basis of these considerations, it would be possible, on theoretical grounds, to account for a number of disorders as manifestations of an internal type of urticaria. For example, urticaria might extend to the lungs producing a form of pulmonary edema, to the heart producing paroxysmal tachycardia, to the brain causing headaches, to the bladder creating hematuria, and to the urethra causing anuria.

Urticarial wheals, therefore, represent an important study in pathologic physiology, and the mechanism of wheal formation deserves close scrutiny. Of great interest and importance is the fact that wheals can be produced experimentally by an immunologic technic that represents a probable reproduction of the actual disease process. This method of wheal production may be described as follows. A small amount of blood serum (0.01 to 0.05 cc.) removed from a food-sensitive patient is injected intracutaneously into a subject. After the passage of twenty-four to forty-eight hours, the subject is fed a definite amount of the specific offending food to which he has been locally sensitized. From two to ninety minutes after ingestion of the food, a reaction consisting of a wheal surrounded by erythema and accompanied by pruritus appears at the passively sensitized site. This interesting procedure has been described and studied with great care by Walzer and Walzer.[1] It corresponds to the Prausnitz and Küstner test of local passive transference of hypersensitiveness.

Straus[2] has reported that the rhesus monkey will accept passive transference of local skin hypersensitivity from human reaginic serums. This fact is of absorbing interest and may prove to be of great value in the experimental study of urticaria and allied skin disease. In this same connection, Sherman, Stull and Hampton[3] have discovered that the serum of guinea pigs sensitized by injection of pollen toxoid contains a substance that will produce passive transitory sensitization of the human skin. In the study of urticaria, therefore, it is now possible to make experimental use of the rhesus monkey and the guinea pig.

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The question of whether or not the wheal reaction actually represents a form of allergy has been a source of much discussion. It seems true, as indicated by Sulzberger and Goodman,[4] that some types of urticaria are definitely not allergic. These authors point out that "primarily urticariogenic agents such as morphine, codeine, atropine, pilocarpine, histamine and choline" do not produce urticaria of a clear-cut allergic type. Blum and West[5] studied a case of urticaria due to blue and violet light. They investigated the wave lengths of these colors, as well as other angles of the problem, and concluded that the true cause was carotenoid pigment rather than any conceivable type of allergy. In Urbach's[6] review of 500 cases of urticaria, he noted that only 20 per cent could be interpreted as forms of allergy. Winkelwerder[7] has written a thesis concerning the relation between urticaria and angioneurotic edema, and has concluded that both urticaria and angioneurotic edema are symptoms of an underlying physiologic disturbance, not necessarily an allergy.

The allergic types of urticaria and angioneurotic edema are common and represent in all probability a true antigen-antibody relation in cases of pollen sensitivity, serum disease and foreign-protein reactions. It must be pointed out again, however, that in urticaria due to drugs no one has been able to demonstrate a true antigen-antibody relation. Nevertheless, recent investigations have shown that simple chemicals when combined with proteins take on the characteristics of true antigens. In such cases, the specificity of sensitization to the chemical protein conjugate depends on the simple chemical attached and not on the protein. It is possible that urticaria-producing drugs, such as aspirin, may combine with body proteins and become allergenic.

Urticaria is a disease of great prevalence, and the usual case is so easily diagnosed that most patients know what ails them before consulting the physician. It is probable that few people pass through life without having an attack of hives. The attacks are often mild and of short duration, and spontaneous disappearance may take place in a few hours, before the necessity of consulting a physician becomes apparent. Many other cases, however, present the most resistant and baffling dermatologic problems. It is likely that a considerable percentage of all patients, including the resistant ones, do not consult specialists but rely on general practitioners for treatment of their difficulties.

On the basis of clinical experience, it is natural to divide urticaria into acute and chronic types. The acute form usually runs a brief course, lasting from a few days to two or three weeks, and terminates, as a rule, in complete recovery. Although the symptoms of acute urticaria may be relieved and the duration of the disease may be shortened materially by proper treatment, the attack will subside spontaneously without any treatment whatsoever. The evaluation of treatment of urticaria is difficult, but it is particularly hazardous in acute urticaria. The value of therapy can be determined more safely in the study of the chronic type of cases that have lasted for months or years.

There seems to be fairly general agreement that skin tests in urticaria are of decidedly limited value and are to be recommended not as a routine plan of study but as a last resort in stubborn cases. As Ormsby[8] puts it, "In hives, skin tests are often positive to substances that are innocent and negative to substances that are causal." As pointed out by Traut,[9] the urticarial reaction differs from true allergy in not being mediated by the reagin mechanism, and in the absence of reagins, cutaneous tests usually give negative results. On the other hand, false reactions are to be expected quite commonly on the basis of the dermatographia usually present in association with urticaria.

In the search for the etiology of acute urticarial recurrences, the patient's own observations regarding causative agents are of the greatest value. Intelligent patients will usually make observations of considerable interest and importance, particularly if there have been regular attacks caused by specific foods or drugs. With patients who have not become fully aware of the eliciting agents in their attacks of hives, well-focused history taking may establish a demonstrable chronologic sequence between ingestion of specific substances and the appearance of attacks. If a careful history fails to give a clue, the elimination diet (Rowe[10]) or a dietary diary may be employed. In this type of investigation it is of value to bear in mind the list of foods and drugs which are likely to cause hives. Frequent causes are the following (Wise and Sulzberger[11]):

Foods	Drugs
Shell Fish	Quinine
Fish (including caviar)	Ipecac
Strawberries	Salicylates
Cheese	Barbiturates
Nuts	Iodides
Eggs	Bromides
Wheat	Phenolphthalein
Milk	Morphine
Pork	Other opium derivatives
Chocolate	Antipyrine

These two lists will account for the majority of cases of acute urticarias, but it must be remembered that no food or drug can be said to be incapable of producing urticaria.

Certain pitfalls may be encountered in the study of urticaria. These may be enumerated as follows[12]:

A certain food may elicit a severe attack at one time but not at another (sensitive and nonsensitive phases).

A food such as fish or dried fish, if fresh, may fail to produce hives — but if not absolutely fresh will cause an attack.

Vegetables and fruit grown in one region may cause hives, whereas the same vegetables and fruit grown in another region may fail to do so.

Certain combinations of foods may be followed regularly by an eruption — whereas these foods individually may be without harmful effect.

The time between ingestion of food and eruption may vary between minutes to hours or days.

Following a single exposure to a sensitizing substance, urticaria may last varying lengths of time — from a few hours to many weeks. Drug eruptions often last for long periods of time.

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Urticaria may be produced by inhalation of the following substances[13]: feathers, orris powder, animal danders, pollens, ephedrine and other nasal sprays, and various dusts, such as house, silk, cotton and kapok.

In the management of cases suspected of being of inhalant origin, the patient's rooms, especially the bedroom, should be made as dust free as possible; furnishings stuffed with feathers, kapok or cotton, especially pillows and mattresses, should be removed or covered with so-called "allergen-proof" materials. The patient as well as the friends and relatives in his immediate environment should be forbidden the use of all cosmetics and toilet preparations except those of nonallergic nature.

Localized hives may be produced by contact allergens such as the following: silk, wool, dyes, cosmetic preparations, flour, fur, fur dyes, eggs, rose-perfumed bath salts and lemon peel. Allergens such as these, acting externally, are capable of producing not only localized urticaria, but also vesicular contact dermatoses. Furthermore, by absorption through the skin, they can produce generalized urticaria. It is interesting to ponder that the skin of one patient will react to an agent such as wool with vesicle formation, whereas the skin of another will respond to wool only with wheal formation.

In the study of chronic urticaria it may well be borne in mind that discovery of the cause is usually far more difficult and less likely than in acute urticaria. Well-directed investigation of cases of chronic urticaria should include a careful survey of possible food factors and inhalants, close attention to drugs and search for foci of infection.

In the management of chronic urticaria, all drugs previously administered should be discontinued at the outset of study and therapy. The most frequent offenders include morphine, salicylates, barbiturates and laxatives. The following potentially causative agents should be inquired for in the carefully focused history[14]: laxatives, sedatives, soporifics, tonics, douches, contraceptives, nasal sprays, eye drops, mouth washes, tooth powders, tooth pastes, hair dyes, scalp lotions and iodized salt.

A patient with chronic urticaria using any of the agents mentioned above should discontinue them for at least six weeks. In addition, if the case is stubborn, it is well to exclude as rigidly as possible feather-stuffed furniture and bedding, and cosmetics containing dyes or perfumes. Nonallergic cosmetics should be prescribed for the patient, as well as those in intimate contact with the patient.

Foci of infection represent a common cause of chronic urticaria, in fact one of the most prevalent. Apparently, teeth represent the commonest focus. Dramatic cures of chronic urticaria have been reported following removal of nonvital teeth in which the apical infection was so slight that it could not be demonstrated by roentgenography.[15]

Nervous and emotional stress and strain can without any doubt elicit urticarial attacks. This aspect of urticaria has been studied in admirable fashion in this country by Stokes and his coworkers.[16] His contributions to this field should merit careful reading by all interested in the problem of urticaria.

Of considerable interest in the literature of recent years are the unusual and unexpected etiologic agents that have come to light. A scrutiny of some of these agents should broaden the understanding of the etiology of urticaria, and should help one to deal with the many unsolved cases of chronic urticaria with which one is so often confronted. As one reflects on some of the bizarre cases that have been investigated successfully and reported, it becomes increasingly easier to comprehend why many such urticaria cases remain unsolved, even when studied in clinics operated by highly skilled workers and fully equipped with all modern laboratory apparatus. Those cases found to be due to foci of infection have seemed to be particularly difficult problems.

Many of these interesting cases of urticaria have proved to be due to simple causes, which have remained unidentified for months or years, in spite of the fact that in the end they seemed almost obvious and not deserving of so much diagnostic difficulty. For example, Rappaport[17] studied a case of chronic urticaria in a dentist and found him sensitive to acrolein, formed by the oxidation of glycerin in cigarettes. The patient could smoke with impunity cigarettes containing no glycerin, but after a drop of glycerin had been placed on such a cigarette, an attack of hives would appear as

the cigarette was smoked. As one might well predict, this patient suffered from hives when eating steak broiled over a hot flame, or when eating broiled fish, owing to his absorption of acrolein formed by the oxidation of fat. (Acrolein is related to formaldehyde, and is a very active aldehyde produced in any food containing fat or prepared with fat if sufficient heat is produced, as in broiling or frying.)

One of my cases proved to be an interesting example of a type of urticaria found in the end to be due to a simple cause overlooked in spite of careful previous studies over a period of one and a half years. The history of the case was lengthy and difficult to analyze. It was found, however, that the patient's occupation involved contact with and handling of numerous dye chemicals. The patient himself had observed that inhalation of formalin vapor made his attacks worse. He had also noted that when away from the factory on vacations he had no difficulty. Physical examination showed numerous large urticarial wheals and violent dermatographism. While in my office, the patient consented to inhale some formalin fumes as a test. After an interval of about ten minutes he broke out with about a dozen additional urticarial wheals associated with extreme itching. Remembering that formalin vapor can be neutralized rapidly by spirits of ammonia, I had the patient moved to a second room and inhale spirits of ammonia. The itching disappeared instantly, but the hives remained unchanged. One would expect the edema of urticaria to be slow in absorption even after removal of the cause. After these tests and after explanations, the patient was able to recall that he could work without difficulty in the dye factories that did not use a formalin-fixation system. The skin tests were particularly interesting: A drop of formalin placed on the skin produced no reaction for an interval of about ten minutes until gross chemical irritation began to appear. A second drop of formalin, applied to the skin and followed by a tiny puncture, produced immediately a typical wheal, which was promptly reduced in size by application of spirits of ammonia. In other words, the horny layer of the skin in this case did not react to formalin except as a consequence of gross chemical irritation, but the blood vessels exposed by a tiny puncture responded to formalin promptly. The implications in regard to prevention and treatment of attacks in this case were obvious. The patient found that his itching could be taken care of very satisfactorily by carrying in his pocket a small bottle of spirits of ammonia and by inhaling the ammonia vapor when exposed to formalin vapor.

Waldbott and Ascher[18] have studied and reported 5 interesting cases of urticaria of the serum-sickness type. These cases all had a definite incubation period of five to nine days, and all were associated with fever and joint and glandular swellings. The clinical picture, therefore, was typical of serum sickness. In 4 of these cases, the condition was brought on by means other than injections, such as ingestion, contact and infection. There was one case of chronic urticaria of four years' duration. The attacks came every six weeks, lasted four or five days, and were each preceded by a flare-up of an old chronic dermatophytic infection of the feet. This case showed a prompt therapeutic response to local applications to the feet and the injection of autogenous fungous extracts. Wise and Sulzberger[19–20] believe "fungi of the trichophyton group to be definite but relatively infrequent causes of clinical urticaria." These investigations demonstrate that in studying cases of chronic urticaria one should always examine the feet and other areas of skin for evidence of dermatophytosis and weigh such evidence as a part of the problem. Perhaps some of the many unsolved cases will be found to be due to foci of fungous infections.

Another case studied by Waldbott and Ascher was that of a thirty-nine-year-old dentist. The clinical picture was that of a generalized severe form of urticaria and was found to be due to aspirin. After stopping aspirin the skin condition persisted eight days and then disappeared entirely. One grain of aspirin taken by mouth produced severe urticaria within ten minutes. Of considerable interest in reference to this case was the fact that the scratch and patch tests with acetylsalicylic acid were entirely negative.

Sulzberger, Goodman, Byrne and Mallozzi[21] in their careful investigation of the subject of cheilitis due to lipstick, found 2 cases in which the cheilitis was associated with chronic urticaria. Both the cheilitis and chronic urticaria disappeared when exposure to the dye of the lipstick ceased — cheilitis due to lipstick is caused, in most cases, by the dye rather than by the perfume or other ingredients. In one case the patient deliberately applied her old type of lipstick again, and both cheilitis and generalized urticaria recurred. From these observations it may be said that lipstick represents one of the easily missed causes of urticaria.

An intensely interesting and important chapter in the knowledge of urticaria concerns the type caused by physical agents, with particular reference to heat. The subject has been much better understood since the work of Grant, Pearson and Comeau,[22] reported in 1936 and reviewed in the paragraphs to follow. It is likely that many cases of urticaria provoked by heat fit into the chronic

resistant group and are often not recognized and treated properly.

The term "physical allergy" was described by Duke[23] in reference to a special group of conditions, which may be enumerated as follows: bronchial asthma, vasomotor rhinitis, conjunctivitis, photophobia, abdominal pain, erythema, pruritus, urticaria, and angioneurotic edema and shock. This list represents a group of symptoms that may be "caused specifically and solely by the action of a physical agent, such as light, heat, cold, mechanical irritation, freezing and burns, and, in the case of heat sensitiveness, indirectly by mental and physical exertion."

Recent studies of the important subject of urticaria provoked by heat or by psychic stimuli have been carried out by Hopkins, Kesten and Hazel,[24] who have also reviewed the literature in an illuminating manner.

Experiments have shown that generalized urticaria due to heat, physical exertion or emotional excitement is brought out by a highly interesting physiologic and biochemical mechanism. Grant, Pearson and Comeau[22] have presented convincing evidence that the lesions are produced by release of acetylcholine at the termination of cutaneous nerves — the first demonstration of a mechanism by which a psychic stimulus can produce a definite lesion in the skin. These workers made the following observations:

If one leg of a patient with "heat urticaria" is placed in hot water, a generalized outbreak of wheals will appear anywhere except on the heated skin. The leg becomes flushed but is usually without wheals. This indicates that the wheals are not produced by the direct effect of heat on the skin.

If before such a test the circulation of the leg is occluded by a cuff, no wheals appear until after the cuff is released and circulation restored. This indicates that the essential stimulus is transmitted from the heated skin by the blood and not by the nerves.

If in a similar experiment the circulation in one arm is occluded by a cuff, although no wheals appear while the arm is ischemic, "numerous blush spots of local vasodilation" can be seen. This indicates that the stimulus is carried to the area in which wheals develop by nerves and not by the blood. If at a suitable time the circulation is released and the capillary pressure restored, wheals immediately appear, usually in these spots of vasodilation.

Attacks of urticaria can be produced in these patients by acetylcholine.

These experiments with heat indicate that the urticaria in these cases was produced by a nerve impulse reaching the skin from some central heat-regulating center stimulated by the arrival of warmed blood from the extremity.

Both normal and heat-sensitive patients react with dilatation of cutaneous blood vessels when one extremity is heated. They also show these reactions to emotional stimuli. In other words, an increase in body temperature or a purely psychic stimulus may excite the sweat-gland nerves and the autonomic vasodilation fibers to secrete acetylcholine in normal subjects and in heat-sensitive patients. The essential abnormality of the latter is that acetylcholine produces wheals in their skin.

There seems at present no proof of the nature of the abnormal reaction to acetylcholine by these patients. One is tempted to assume that the patients are specifically allergic to this chemical, but there is as yet no evidence that allergy to acetylcholine can be produced. Hopkins and his associates[24] attempted passive transfer tests of sensitivity by means of the serum of heat-urticaria patients, but the results were inconclusive. The evidence indicates, however, that whether the urticaria follows exposure to heat, exercise or nervous excitement, it is caused by a direct action of acetylcholine or some related biochemical substance on the cells of the skin.

Urticaria due to heat may be brought on by the effect of a warm room, standing in front of the fire, hot baths, exposure to direct sunshine on warm days, warm bed clothing, emotional excitement, violent exercise, hot food, anger or nervousness. This type of urticaria may be relieved temporarily by a cold shower. The lesions are apt to come out in susceptible subjects after the rectal temperature has risen 0.4 to 1.2°F. A very effective stimulus may be delivered by immersion of the feet in hot water.

One of Hopkins's patients with heat urticaria was successfully treated, with complete recovery, by increasing gradually the temperature of her daily bath.

The great importance of the acetylcholine reactions of the body has been brought out by the work of Hall, Ettinger and Banting,[25] who produced coronary and myocardial lesions and ulcers of the stomach and duodenum both by administration of acetylcholine and by stimulation of the vagus nerve.

Treatment

The circulating allergens that produce acute hives are, with scarcely any doubt, usually of alimentary origin. Therefore, the first step in etiologic therapy is to clean out the gastrointestinal tract, unless good evidence can be obtained of the possibility that there is some less common cause of acute urticaria, such as inhalants, foci of infection or contact allergens (absorbed by transepidermal penetration). For cleaning out the intestinal

tract, Wise and Sulzberger[26] recommend calomel in a dose of 3 to 6 gr. at night, followed in the morning by a saline cathartic. Daily morning doses of a saline cathartic may be continued for several days. The food should be bland and the intake limited. Fluids should be forced to aid elimination of allergens. Violent exercise should be avoided, because it increases the blood supply to the skin and increases the severity of symptoms. Alcohol should be avoided, because it tends to increase absorption of allergens from the gastrointestinal tract and also increases the blood supply to the skin.

Some of the newer methods of therapy in urticaria should be described. Many of these are based on physiologic mechanisms of clear-cut etiologic importance. Others are more empirical in nature. The evaluation of therapeutic measures used in treating urticaria is hazardous because it is impossible to anticipate the course of the disease in any particular case. Even severe cases of long duration may exhibit sudden and inexplicable spontaneous remissions. This fact probably accounts for the large number of remedies that have been advocated, and also explains why so many of these remedies have not stood the test of time.

In the therapy of urticaria at Northwestern University it was observed by Rosenberg[27] that the use of elimination diets sometimes was associated with exacerbation of the disease. This observation, coupled with the fact that some of the patients had been on relief and some had been on a prolonged diet containing limited amounts of citrus fruits and fresh vegetables, led to a consideration that vitamin C deficiency might be etiologically significant in these cases. Since urticaria is a disease involving the small blood vessels and since vitamin C deficiency is known to be capable of causing a defect in capillaries (Wolbach and Howe[28]), it seemed logical to study the vitamin C content of the blood in these cases and to test the effect of therapy by means of vitamin C. It was found that the blood vitamin C level was reduced usually about 50 per cent below normal. Also, it was found that the administration of vitamin C in the form of lemon juice and orange juice produced a sharp rise in the blood vitamin C level and relieved wholly or in part the symptoms. The case histories reported are interesting.

Rusk and Kenamore[29] have reported a series of 6 cases of urticaria which were resistant to the customary forms of therapy, such as Rowe diets, elimination of foci of infection, and other routine measures. These cases were subsequently managed with surprisingly favorable results by means of a high-protein, low-sodium, acid-ash diet of average caloric value with potassium chloride added in dosage of 60 to 90 gr. daily. Potassium was administered on the basis of its action as a depressant to skin irritability and of its other effects similar to the action of adrenalin. Cohen[30] used the Rusk and Kenamore treatment in 8 cases of urticaria, and none of these showed any improvement whatsoever. Such discrepancies in the results of various forms of therapy, as employed by different workers in different localities, are frequently encountered in all branches of medicine, as is well recognized. It is probable, however, that these discrepancies are particularly noticeable in the many forms of treatment advocated for urticaria.

After having used insulin successfully in certain cases of refractory eczema, Caven[31] studied its action in 2 cases of severe urticaria. Favorable results were obtained. One patient was found to be sensitive to wheat, eggs and milk, and a restricted diet brought relief, but the slightest dietary indiscretion caused prompt recurrence. Daily injections of 5 units of protamine zinc insulin resulted in an improvement to the extent of permitting the patient to eat bread without distress, whereas previously one slice of bread had caused pain in the abdomen and swelling about the eyes within an hour or so. The second patient developed severe, acute generalized urticaria following a suprapubic cystotomy. The precise cause of this case of urticaria was not identified, and the usual types of treatment brought no relief. Three hours after the injection of 8 units of protamine zinc insulin, all signs of urticaria disappeared promptly. There was a mild recurrence several days later, but this was checked by another injection. After that no further occurrences were observed.

Hajos,[32] in a study of chronic urticaria, found that among his patients the gastric hydrochloric acid was absent in 65 per cent and lowered in 30 per cent. Cholecystitis was often present among these patients. In treatment, he employed hydrochloric acid by mouth and histamine injections. Favorable results were obtained.

According to Freund,[33] the only means of relieving immediately the itching of urticaria consists in repeatedly rolling a very hot, uncovered water bottle over the involved area. Wise and Sulzberger[34] agree with this general viewpoint and state that the relief of intolerable crises of itching is often best accomplished by the application of heat, such as immersion of the part in water as hot as the skin will bear.

According to Hopkins,[35] one should think, in dealing with chronic urticaria, of bacterial sensitization as the likeliest cause, and of allergy to food as the least likely. In some of his cases of in-

tractable urticaria, Traut[9] found hemolytic streptococci and green streptococci growing in abnormal profusion in the rectum. In the absence of other detectable causes, these patients were treated with vaccines of rectal streptococci, and the results were good. The patients treated successfully by this method had usually received prolonged and fruitless therapy along many of the usual standard lines, such as Rowe diets, avoidance of wool and silk, removal of husband, aunt, daughter and dog, and injections of whole blood and calcium. One patient with chronic urticaria of fourteen years' duration was treated by a series of seventeen injections of streptococcal vaccine and was relieved completely, having had no recurrences in two years at the time the case was reported. From the Mayo Clinic (Emmett and Logan[36]) a case of chronic urticaria of seventeen years' duration has been reported; this patient was treated and cured by an autogenous vaccine of colonic organisms.

The bacterial origin of urticaria has been studied in an illuminating manner by Hansen–Prüss,[37] who has analyzed and reported several cases of great interest. One case of severe urticaria was found to be due to a pyelitis caused by a hemolytic *Staphylococcus aureus,* and cleared when the urine cultures became negative. There was a strong immediate skin reaction to staphylococcal toxoid, and this was found to persist two years after disappearance of the urinary infection. A second case of Hansen–Prüss's showed x-ray evidence of gall-bladder disease, and this led to bacteriologic studies of duodenal-drainage material, which proved to contain hemolytic streptococci. Stool cultures showed hemolytic colon bacilli and beta hemolytic streptococci. This case was treated successfully by Prontylin and Prontosil. The urticaria disappeared, and cultures of the stool and duodenal fluid became negative.

Hansen–Prüss succeeded in demonstrating the presence of beta hemolytic streptococci in the upper respiratory tract, the bronchial tree or duodenal contents of 10 adults suffering from urticaria. Elimination of the infection was followed in every case by subsidence or disappearance of urticaria. Prontylin, Prontosil and sulfanilamide therapy caused the disappearance of beta hemolytic streptococci from the stool and duodenal fluid, but had no effect on alpha hemolytic streptococci.

The use of histaminase in the treatment of urticaria seems to be based on sound physiologic knowledge. Therefore, it has been employed clinically with keen and hopeful anticipation. For many years histaminase has been used in Europe in the form of Torantil in the attempted treatment of all the manifestations of allergy. In reference to the use of Torantil in this country, Goodman and Sulzberger[38] state:

> Almost all the investigators now agree that the drug has proved generally disappointing, although its effect may have seemed beneficial in isolated instances. Allergists and dermatologists in this country will watch the results of the next few years work with histaminase with considerable interest. Our own experience with histaminase (Torantil) in all forms of allergy, as well as in urticaria due to cold or other factors, has thus far failed to demonstrate any therapeutic effect.

Markel[39] has reported a case of chronic urticaria and angioneurotic edema associated with signs of pancreatic insufficiency. The administration of deinsulinized pancreatic extract resulted in a cure. Although cases of this type must be uncommon, this case serves as an example showing the extremely bizarre etiologic interplay seen in urticaria, and it serves also as one further item which may be added to our therapeutic legerdemain.

The endocrinologic approach to the urticaria problem deserves thoughtful consideration, and further advances in the field of endocrinology may shed valuable light on the problem of therapy. It is well recognized that acute attacks of urticaria may be relieved at least temporarily and partially by injections of adrenalin. Cases of chronic urticaria have been known to respond successfully to thyroid medication, when many other measures had failed. It may be remembered that the drug, thyroid, sensitizes the neuromuscular function to the action of the patient's own circulating adrenalin. Perhaps urticaria is actually a type of imbalance between the two divisions of the autonomic nervous system — sympathetic and parasympathetic. Atropine, ephedrine, pilocarpine and other drugs and the hormones have powers of influencing the autonomic-nervous-system balance. Perhaps a drug or hormone more effective in its influence on the activity of the autonomic nervous system will be found and will be of great value in the symptomatic treatment of hives.

Poison-Ivy Dermatitis

In an entry dated October 9, 1748, Peter Kalm gave in his account of his travels in North America an extensive and interesting description of the *Rhus radicans* of Linnaeus. Since that time there have been many accounts of these plants and of their toxic nature. Even before 1748 there was a clear-cut account of severe suffering from poison-ivy dermatitis, which was contracted in New Mexico by the members of a Spanish expedition, under Governor Valverde, sent to that area in 1719 (McNair[40]).

Of all the skin eruptions caused by plant substances, that produced by the different species of

Rhus is probably the commonest in North America. *R. toxicodendron, R. radicans* and *R. diversiloba* form a triad of plants regarded equally with caution and aversion. The recognition of their injurious character is shown in the application of the names, "poison ivy," "poison vine" and "poison oak," given to them in various parts of the United States. Shelmire,[41] commenting on this three-leafed, white-fruited form of the Rhus family, makes statements of considerable interest. In addition to the various species of the Rhus family already mentioned, he lists *R. quercifolia, R. microcarpa* and *R. rydbergii,* and he reasons as follows:

> Some botanists still contend that slight differences exist between these many forms, basing their contentions on whether the habit of growth of the plant is chiefly erect or climbing and on variances in the texture, pubescence and degree of lobing of the leaflets. Since all these variations can be observed in the same species under different climatic, soil and other field conditions, conservative toxonomists now agree that the numerous species of poison ivy are identical. I have patch tested ivy-sensitive persons with acetone-diluted oleoresins extracted from the many so-called species of ivy collected in different sections of the United States and have found the antigenic potencies of the various specimens to be identical.

Shelmire's experiments indicate that the dermatitis-producing principle of poison ivy is not an oil, as previously described, but a dialyzable fraction of the oleoresin soluble in water and urine.

Poison-ivy dermatitis is a skin disease that, as a rule, is diagnosed easily, but it cannot be diagnosed with absolute accuracy on the basis of the skin appearance alone. It is advisable always to elicit a careful history to eliminate the other venenatas and contact dermatoses, which present pictures identical with that seen in poison ivy. The dermatoses that may bear a close resemblance include those due to such allergens as the following: iodine, furs, dyes, cosmetics, tar, sulfur, chrysanthemum, primrose, sumac, sunflower, ragweed, celery, tobacco, tomato, orange, matches, phenol, cocobolo wood and formalin. This long list could be extended a great deal further with considerable ease, but it serves as it stands to indicate the numerous pitfalls that easily creep into the diagnosis of poison-ivy dermatitis.

The ease with which this dermatitis is misdiagnosed accounts in part for the widely divergent opinions concerning therapy, particularly injections. It seems likely that many cases treated by injections of the Rhus antigen are not really caused by poison ivy but by totally unrelated substances and hence are not likely to respond to ivy-antigen injections.

An acute dermatitis presenting clear-cut vesicles with or without bullae and appearing suddenly on exposed regions of the body should always arouse suspicion of dermatitis venenata. In the summer months an acute vesicular dermatitis involving the face, hands and genitalia should always call for inquiry concerning ivy, primrose or other plants. In the colder season a similar eruption around the neck suggests investigation of the possibility of allergic reaction to collars and scarves containing fur, wool, silk or dyes. At any season a dermatitis in the scalp, spreading over the forehead, ears and neck, should lead to inquiry regarding hair dyes. These simple facts reviewed even briefly as one inspects and studies a clear case of dermatitis venenata should help to prevent a hasty and erroneous diagnosis of poison-ivy dermatitis.

The distribution of poison-ivy dermatitis need not be limited to hands, face and genitalia, but may involve any area of the body. As a rule, one makes no effort to account for the bizarre areas of distribution that are seen. However, the effort to inquire into and determine possible mechanisms to account for any particular type of distribution may be rewarded by interesting findings concerning this subject. One patient of mine had been exposed quite definitely to poison ivy, but had the disease only on the thighs and buttocks. He recalled no direct contact with the plant except with his gloves and other articles of clothing. On careful questioning it was discovered that after he came in from chopping wood he took off his trousers and laid them on a chair. He then sat down on the trousers as he unlaced and removed his shoes and stockings. The distribution was thus accounted for. In this case, the hands showed no evidence of the disease, although they must have come in contact with the poison ivy on his clothing. The hands escaped the disease in this case probably because they were washed with soap and water before the ivy allergen could initiate dermatitis. As a rule, people wash their hands far more frequently than other parts of the body. In studying the distribution of poison-ivy dermatoses, it should be helpful to remember that even in the most violently susceptible subjects all areas of skin may not be allergic to poison ivy, and that some areas may be quite resistant to it, as proved by patch tests.

Internal manifestations of poison-ivy poisoning may occur. The majority of such cases have been caused by chewing the leaves or by swallowing the juice to obtain immunity. One of these cases terminated fatally (Alumbaugh[42]). The internal form of the disease sometimes occurs after eating the poison-ivy fruit, particularly if it is unripe. In such cases the patient usually becomes

drowsy and stuporous, later vomits a wine-colored fluid and finally may go into convulsions.

Prophylaxis and Treatment

Protection against poison-ivy dermatitis may be afforded by application of an oxidizing agent to the skin prior to deliberate exposure to the plant. Potassium permanganate solution (0.1 per cent) and ferric chloride solution (3 to 5 per cent) have been found to be useful. The potassium permanganate method, however, has the disadvantage of staining, and the ferric chloride method carries the risk of permanent iron deposits in the skin. Schwartz, Warren and Goldman[48] have found that complete protection of the skin against the action of the poison-ivy plant can be accomplished by application to the hands and forearms of a preparation containing 10 per cent sodium perborate incorporated in a base of vanishing cream. After such an application, a white deposit is left on the skin. Poison-ivy leaves may then be plucked and brushed against the skin without deleterious effects. Farmers, horticulturists, gardeners and men engaged in clearing land of poison ivy can obtain complete protection by the use of this cream. Application of the substance should be made in the morning and removed at noon with soap and water, which removes not only the sodium perborate but also the poison-ivy deposits. In the afternoon, when the patient returns to work, the cream should be reapplied.

The problem of the treatment of poison-ivy dermatitis is that of skillful selection and proper application of oxidizing, drying and antipruritic agents. In addition, there is the controversy about whether or not injection of poison-ivy extracts should be employed. Of course, in all cases one must adapt the treatment to the patient's idiosyncrasies. The past experiences of the patient are usually an excellent aid in working out a program of care particularly suited to the individual case.

It seems as though no type of topical application has any consistently dramatic effect in the treatment of poison-ivy dermatitis. In my experience, the dramatic results from therapy have seemed to come mostly from the use of poison-ivy extracts given by intramuscular injection. When such excellent results are obtained, they have come about only after the administration of at least four daily injections of the extract and only after the passage of about twenty-four hours after the fourth injection. I have used Lederle's poison-ivy extract, given in 1-cc. doses by a careful technic devised to ensure deep intramuscular injection and to avoid placing any of the material on the skin or in the subcutaneous spaces. Naturally, if the poison-ivy extract comes in contact with the skin, the usual dermatitis is likely to result. If the extract is introduced into the subcutaneous spaces or if it leaks back into these spaces from the muscle, severe local reactions are apt to occur. Following intramuscular injection, immunity develops in various degrees. It is well recognized that having had poison-ivy dermatitis provides no immunity, and one attack is apt to be followed by years of recurrent attacks, unless injection therapy is used or unless the plant is avoided. There is no doubt that severe allergy to poison ivy may subside spontaneously, but it is more apt to take place by a very slow and gradual process, probably requiring complete avoidance of the plant for years.

Topical applications of value in the treatment of poison ivy include the following: potassium permanganate solution (0.02 per cent), boric acid solution (2 per cent), Burrough's solution (diluted 1:16) and carbolized zinc oxide lotions. Iron salts such as ferric chloride are no longer recommended because of the permanent iron deposits occasionally seen. In my opinion, the best and safest oxidizing agent is potassium permanganate.

It is of great importance to remember, when treating all types of dermatitis venenata, that the local therapy is exclusively a drying type of procedure and that after several days of such treatment the skin may become excessively dry. At this stage, itching may be due to dryness and not to vesiculation. After the disappearance of vesiculation it is desirable to use a grease, which will often give considerable relief from discomfort. It is contrary to the best accepted opinions to use any kind of grease before the disappearance of vesiculation. The allergen of poison ivy is soluble in oils and greases, and it is possible to disseminate the poison considerably by the premature use of ointments. The use of a grease in the late dry stages of poison-ivy dermatitis is an entirely different matter, as already indicated.

Opinions regarding the injection therapy and prophylaxis of poison-ivy dermatitis are widely divergent. Caulfeild,[41] of Toronto, employed poison-ivy extracts in therapy and prophylaxis and obtained very favorable results. He found that intramuscular injection of this extract lessened the severity and duration of an attack, and he succeeded in showing that after these injections the patch tests with poison-ivy material became less strongly positive or even completely negative. He demonstrated evidence that clinical immunity to ordinary contact with poison ivy could be produced by these injections.

The present status of the therapy and prophylaxis of poison-ivy dermatitis by the injection method has been summarized recently by Good-

man and Sulzberger.[38] It is appropriate to quote an excerpt from their paper:

> The following are among the authors who have reported favorable results from administration of extracts in the specific treatment of ivy dermatitis: Strickler, Williams and MacGregor, Bivings, Clock, Gowen, Sharlit and Caulfeild.
>
> The following are among those who have reported no beneficial effects of extracts used in specific treatment: Krause and Weidman, Corson and Sompeyrac.
>
> Among others, the following have reported the specific extracts to be effective in prophylaxis of poison-ivy dermatitis: Clock, Gowan, Blank and Coca, Biederman, Caulfeild, and Molitch and Poliakoff . . . .
>
> On the other hand, there are some authors who report that specific injections are of no prophylactic value. These include Bachman, and . . . Zisserman and Birch, with a controlled study on a group of 1731 boys.

Wright[45] states that he has administered the tincture of *R. toxicodendron* by mouth and has obtained with it excellent results both during the attack and, particularly, in the prevention of ivy poisoning. He has described carefully his technic for using the tincture. Wright also recommends the injection therapy of poison ivy.

X-ray therapy is a useful aid in poison-ivy dermatitis and is often employed in severe and stubborn cases. It is effective in dosage so small as to involve no hazard whatsoever.

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CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICOPATHOLOGICAL EXERCISES

FOUNDED BY RICHARD C. CABOT

TRACY B. MALLORY, M.D., *Editor*

CASE 27151

PRESENTATION OF CASE

A twenty-nine-year-old married seamstress entered the hospital complaining of attacks of "coma."

The patient was well until three years before admission, when she noticed the onset of dizzy spells occurring about eleven o'clock in the morning during which she felt faint. Further, the patient felt weak and almost continuously hungry. Two and a half years before admission, at the same time one morning, she began to perspire freely, her mind became "paralyzed" and she went into "coma." This state lasted for seven hours, and although friends said that she walked and ate during the first two hours, she remembered nothing. The patient stopped work for five months, but then returned and shortly afterward had another attack of "coma." In the morning two days later, after having some teeth extracted, she could not be roused, so that the family physician advised immediate entry to a hospital, where the patient regained consciousness; a skull plate was negative, but a blood-sugar level of 35 mg. per 100 cc. was recorded. The patient was given "mixed gland pills" and a high-calorie, high-fat diet, with seven meals a day. Under this regime she felt better and gained weight and strength, but her appetite was not easily appeased and she lacked her former energy. The attacks of "coma," although milder, still occurred two or three times a month and seemed to have a relation to menstruation. In general the attacks appeared before mealtime when the patient felt weak and hungry and had worked too hard around the house. The spells were ushered in by marked perspiration, dizziness and lack of concentration, but they occasionally appeared without warning; sometimes she could hear, but was unable to respond or complete an intended action. Loss of consciousness could be prevented by drinking cocoa or coffee with sugar, and after such an attack she felt chilly. The patient had gained 40 pounds in the last two and a half years.

The family history was irrelevant. The patient had one child, born a few months before the onset of her present illness.

Physical examination was essentially negative. The blood pressure was 110 systolic, 70 diastolic.

The temperature, pulse and respirations were normal.

The urine was normal. Examination of the blood showed a red-cell count of 4,940,000 with a hemoglobin of 90 per cent, and a white-cell count of 10,500. The fasting blood sugar ranged between 38 and 41 mg. per 100 cc., the nonprotein nitrogen was 24 mg., the protein 6.4 gm. and the cholesterol 144 mg. per 100 cc., and the chlorides 108.1 milliequiv. and the carbon dioxide combining power 28.7 milliequiv. per liter. A blood Hinton reaction was negative; the stools were normal. A glucose-tolerance test using 100 gm. of glucose gave a fasting sugar of 26 mg. per 100 cc., 102 mg. in thirty minutes, 196 mg. in one hour, 220 mg. in two hours and 246 mg. in three hours. An insulin-glucose-tolerance test using 6 units of insulin subcutaneously and 100 gm. of glucose by mouth gave a fasting sugar of 30 mg. per 100 cc., 89 mg. in twenty minutes, 102 mg. in thirty minutes, 93 mg. in forty-five minutes, 74 mg. in one hour. At the two-hour mark, when the blood sugar was 90 mg. per 100 cc., 0.6 cc. of adrenalin was given subcutaneously. Forty-five minutes later the sugar was 93 mg., and one hour later 114 mg. A 17-ketosteroid assay was 9 mg. per 100 cc.; the basal metabolic rate was −6 per cent.

X-ray studies of the skull and chest and a gastrointestinal series were negative.

DIFFERENTIAL DIAGNOSIS

DR. REED HARWOOD: There can be no doubt that this woman was suffering from hypoglycemia. The symptoms are typical and were relieved by the ingestion of food. The most probable cause is hyperinsulinism, but we must first consider other possibilities in the differential diagnosis. Addison's disease can be accompanied by hypoglycemic attacks. We can exclude that diagnosis in this case by the physical examination and the normal 17-ketosteroid assay. In hypopituitarism, hypoglycemic attacks are frequent and troublesome, but again we have a physical examination that would exclude it, not to mention the normal menstrual periods and the normal 17-ketosteroid assay. Hypothyroidism in certain liver diseases can cause a tendency toward hypoglycemia, but rarely would a patient have such a low blood-sugar level as is present in this case.

Let us imagine that we are the physician in charge and that we must decide what to do with this patient. She was in an extremely precarious situation. Although the attacks had been fairly well controlled in the past, there was no telling

when she might be unable to absorb enough glucose because of gastroenteritis, seasickness or anything of the sort. There is no way of telling when she might overexert herself or for some reason be unable to get food quickly. She might suffer serious cerebral damage or die in an attack. It was therefore necessary to explore the pancreas in the hope of finding a tumor of the islands of Langerhans. Since we know that some of these tumors become malignant, we have a second reason for exploration.

Will the surgeon find a tumor? In a good proportion of the reported cases the surgeon has been unable to find one. In some cases a single small nodule or several small nodules are found. Occasionally a single large tumor of the pancreas is found and sometimes extensive metastatic cancer with metastases in the liver. I do not believe that cancer was present in this case, since the symptoms did not progress during the three years. If the surgeon is unable to find a tumor he may elect to resect a good portion of the pancreas in the hope of alleviating the attacks. If this were done, Dr. Mallory may tell us that the pancreatic islet tissue shows hyperplasia, but cases have been reported in which no abnormality was noted in the pancreas. Some patients have been operated on repeatedly; sometimes at a second or third operation a tumor is found, and sometimes one is never found. It is impossible to predict, with the findings that we have, what would be found at operation. Since the gastrointestinal x-ray films were normal, I am going to guess that the tumor was not a large one.

I might say a word about the glucose-tolerance and glucose-insulin-tolerance tests, which have not been found helpful in establishing a diagnosis in these cases. In hyperinsulinism, any type of curve may be found. In this particular case the glucose-tolerance test showed that the patient's own pancreatic tissue was unable to handle a large test dose of glucose. This can mean that the patient had diabetes mellitus as well as hyperinsulinism,—such cases have been reported,—or it can be explained on another basis. In the presence of an islet tumor, the normal islet tissue may not be functioning properly. The glucose-insulin-tolerance test simply showed that the patient was not insulin resistant. The most significant test in hyperinsulinism is the fasting blood sugar.

Clinical Diagnosis

Islet tumor of pancreas.

Dr. Harwood's Diagnoses

Hyperinsulinism.
Adenoma of the islands of Langerhans ?

Anatomical Diagnosis

Adenoma of pancreatic islet cells.

Pathological Discussion

Dr. Tracy B. Mallory: This patient was explored by Dr. Leland S. McKittrick and Dr. Edward D. Churchill, with a diagnosis of probable islet tumor of the pancreas. After a very long tedious exploration, almost given up at one point, a small area of the pancreas was finally found that seemed to be of slightly different color and consistence from the rest. It was outlined so vaguely that they were uncertain where the borderline was between the tumor and the surrounding pancreatic tissue. Therefore, a margin of presumably normal pancreas was resected with the suspected tumor. The specimen was immediately divided in half, part of it delivered to the chemists for insulin assay, and the other half run through for sections. Unfortunately, it was still impossible to be certain what was tumor, and the specimen that was sent for assay turned out to be normal pancreas, showing a normal insulin content. The material we saved for histologic examination we again divided in two parts, one of which we put in ordinary fixative, the other in a special fixative, thinking we would try to stain the beta granules. The part we put in special fixative turned out to be normal pancreas, showing beautiful granules in the islets. The part we put in the ordinary fixative did prove to be an adenoma, but all our efforts at special investigation were fruitless. Further proof that this was an islet tumor of the pancreas is furnished by the postoperative course of the patient.

Dr. Eugene Sullivan: She has been followed carefully since her operation in October, and was last seen one month ago. We were somewhat disturbed immediately postoperatively that one or two blood-sugar determinations were rather low. However one of these specimens had apparently clotted by the time it got to the laboratory. The recent specimens show a fasting blood-sugar range of 70 to 80 mg. per 100 cc. in comparison with the ones taken beforehand, which were in the neighborhood of 40 mg. She has not had a single hypoglycemic attack since operation.

CASE 27152

Presentation of Case

A forty-three-year-old woman entered the hospital complaining of shooting pains in the right leg.

The patient stated that approximately three years before admission she tripped on the stairs

and fell on her right knee and shin, scraping the skin rather badly. Since that time she had been unable to kneel on that knee and had had intermittent, mild pain in the upper right leg aggravated by walking. One month before admission the pain in the upper shin became much worse and often kept her awake. During the year before entry, the patient had gained 20 pounds and had suffered from frequent frontal headaches, and for six months, vision had failed gradually in her left eye.

The patient had had diphtheria and tonsillitis. She was the mother of ten children, and had had one abortion, and two premature births occurring at seven months, neither of the infants surviving.

On examination the patient was well developed and well nourished and in no apparent distress. The scleras were clear; the pupils were equal and regular, and reacted to light and accommodation. A rosebud-shaped posterior polar cataract was present in the left eye. Examination of the heart, lungs and abdomen was negative; the blood pressure was 110 systolic, 70 diastolic. Rectal examination showed hemorrhoids and a slight rectocele. There was a fusiform, tender swelling of the upper third of the right tibia along its anterior border. The skin over this swelling showed a brownish pigmentation; the temperature was not increased. Arterial pulsations were present in both legs. Examination of the nervous system was negative.

The temperature, pulse and respirations were normal.

Examination of the urine showed a + test for albumin; Bence-Jones protein could not be demonstrated. Examination of the blood showed a red-cell count of 4,350,000 with a hemoglobin of 75 per cent, and a white-cell count of 5700 with 65 per cent polymorphonuclears. The sedimentation rate was 28 mm. in one hour. The nonprotein nitrogen of the blood serum was 20 mg., the calcium 10.6 mg., the phosphorus 3.5 mg. and the phosphatase 2.6 Bodansky units per 100 cc. Blood Hinton and Wassermann reactions were positive; agglutination reactions against typhoid and paratyphoid bacilli and *Brucella abortus* were negative. A lumbar puncture gave an initial pressure of 150 mm. of spinal fluid. On examination of the fluid there was no increase in cells; the protein was 75 mg. per 100 cc., the gold-sol curve 2223331000, and the Wassermann reaction positive.

X-ray films of the right leg taken in the Out Patient Department one month before admission showed extensive, irregular periosteal new-bone formation along the anterior and lateral aspects of the right tibia. The changes were particularly marked below the tibial tuberosity. An area of localized bone destruction was also present in this region, and there was some soft-tissue swelling. An x-ray film of this region at the time of admission showed a definite increase in the periosteal proliferation over the upper end of the tibia. The entire upper third was involved up to the margin of the joint cartilage. There was apparent fluid in the knee joint, and edema of the soft tissues overlying the periostitis. There were still no large areas of bone destruction and no sequestra. The left tibia appeared normal. X-ray studies of the skull, ribs and bones of the pelvis were not abnormal. A chest plate was negative, with no evidence of metastases.

On the fourth hospital day a biopsy was performed.

Differential Diagnosis

Dr. Clifford C. Franseen: May we see the x-ray films?

Dr. George W. Holmes: The location of the lesion is where we should expect to find syphilitic periostitis. The whole cortex is thickened. The endosteum is somewhat thickened, as well as the periosteum, so that the medullary canal is narrow. That again is in favor of a syphilitic lesion. If we look carefully at the lesion itself, the new-bone proliferation has the looped appearance, sometimes called a "lacework appearance," that we associate with syphilis. If we confine ourselves to these earlier films, the lesion is rather characteristic of syphilis, but in the next set of films, taken a month later, a remarkable change has taken place for a syphilitic process that is not under treatment. Then in this film there are some lines that might represent true spicules. Any chronic inflammatory condition could produce that effect, but syphilis does it more often. I think it is very unusual to see it in tumors. A tumor of that extent should be accompanied by a large soft-tissue mass, particularly since it involves the surface of the bone.

Dr. Franseen: To go back to the duration, which is of great interest in this case, three years certainly suggests a low-grade, long-standing inflammatory process. The duration is also consistent with a benign lesion in which some change had taken place a month or so before admission, because the pain had become worse during the past month. The failing vision is later explained by the presence of a cataract. I do not know why a patient of this age had a cataract. I do not believe that we have to consider a metastatic melanoma from a primary tumor of the eye in this case, as the history of unilateral failing vision might have suggested. In the approximately 20 cases of this condition that I have seen at the Huntington and Palmer hospitals, I do not remember any in which there was metastasis to bone, but it does occur when the primary tumor is in other sites.

The next points of interest are the two premature births and the positive laboratory findings that have to do with syphilis. The brownish pigmentation could be explained on the basis of long-standing chronic inflammation and need not be related to the brownish pigmentation of von Recklinghausen's disease, which might be suggested because of accompanying bone lesions. The sedimentation rate is barely elevated. The other blood findings are normal. The phosphatase is low, which is against osteogenic sarcoma with this much proliferative new bone present. With the phosphatase normal, the indication is that this new bone has been laid down over a long period of time. The normal phosphatase is also against Paget's disease. When new-bone formation occurs to this extent in metastatic carcinoma, the phosphatase might well be slightly elevated and would almost certainly be elevated to some extent with additional metastasis elsewhere. Both the Hinton and Wassermann reactions were positive, and this again focuses our attention on syphilis. It is difficult to explain why tests for agglutinins against typhoid and paratyphoid bacilli and *Brucella abortus* were performed. The patient had a low white-cell count, it is true. Periostitis does occur in typhoid fever, and I have been told that it also occurs in paratyphoid A fever, so that these tests may not have been so far afield as one would at first imagine. I remember reading of a case of periostitis of the rib in a patient who had typhoid eighteen years previously; a pure culture of typhoid bacilli was obtained from an abscess beneath the periosteum. I do not know that periostitis ever occurs in brucellosis. The lumbar puncture showed findings consistent with tabes: elevated protein, suggestive gold-sol curve and positive Wassermann reaction. The patient had no Argyll-Robertson pupils, however. So much for what we learn by the history and physical findings.

We must also consider other infectious conditions. I think that tuberculosis can probably be ruled out because of the age of the patient and other factors. A low-grade osteomyelitis might be considered. The descriptions of the sclerosing forms of osteomyelitis simulate this picture to some extent, but I have not known of a case of as long duration as this, so that perhaps we need not enlist that diagnosis. Syphilis certainly must be kept in mind, since this lesion, which Dr. Holmes has described, is entirely consistent with syphilitic periostitis. Dr. Holmes and Dr. James R. Lingley described the bone lesions in syphilis three years ago; they suggested that syphilis can simulate practically any bone lesion one can name, and also that it not infrequently follows trauma. This is also the site in which syphilis of the bone commonly occurs.

So far as neoplasms go, osteogenic sarcoma might be possible from the x-ray examination, but we cannot reconcile it with the duration, the absence of soft-tissue tumor swelling and other factors. The same thing is true of fibrosarcoma contiguous to bone, with periosteal reaction. Ewing's tumor similarly tends to form more of a tumor. It is difficult to make a diagnosis of a malignant bone lesion with a duration of three years, if we can believe that the patient had some process there during the entire period. There is nothing to support myeloma or lymphoma of bone or reticulum-cell sarcoma. She was in the age group in which metastatic cancer might be considered, without lesions elsewhere, but this would be an extraordinary picture for metastatic carcinoma. I remember, however, a patient who had a single metastatic lesion in the tibia, — more destructive than this, it is true, — which was the only lesion in her body of a recurrence of a carcinoma of the breast.

We must keep in mind metabolic diseases, but we have no evidence of anything in the laboratory findings to support such a diagnosis.

We are led so completely to the diagnosis of syphilis of bone that I fear there may be some trap, yet I do not believe we can justifiably make any other diagnosis in view of the x-ray findings, the history and the positive laboratory findings. Despite the diagnosis, I believe a biopsy is indicated for confirmation because of the rapid change in the appearance of the lesion by x-ray examination during the last month. My diagnosis is syphilis of bone.

Clinical Diagnosis

Syphilis of bone.

Dr. Franseen's Diagnosis

Syphilis of bone.

Anatomical Diagnosis

Syphilitic periostitis.

Pathological Discussion

Dr. Tracy B. Mallory: A biopsy of the tibial cortex was performed, and the microscopic examination showed new-bone formation, with marked fibrosis and inflammatory reaction. In the inflammatory tissue, leukocytes and plasma cells predominated, but there were also focal clusters of epithelioid cells that were fairly characteristic of miliary gummas, so that the diagnosis of syphilis is substantiated.

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The Journal does not hold itself responsible for statements made by any contributor.

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AMERICAN COLLEGE OF PHYSICIANS

During the week commencing April 21, the twenty-fifth annual session of the American College of Physicians will be held in Boston, with general headquarters at the Hotel Statler.

In general the program is as follows: hospital clinics and lectures in the mornings, followed by panel discussions; general sessions in the afternoons; and a variety of entertainment in the evenings, including a Symphony Concert on Tuesday, April 22, and the annual banquet on Thursday, April 24. Detailed information can be obtained from Dr. William B. Breed, 264 Beacon Street, Boston, chairman of the Committee on Arrangements.

Registration is not limited to members of the American College of Physicians. The following will be admitted without registration fee to practically all the sessions on the presentation of proper credentials at the registration desk: all members of the medical corps of the United States Army, Navy and Public Health Service; members of the staff, including interns, of the hospitals participating in the program; and all fourth-year students of approved medical schools. Furthermore, duly qualified physicians are permitted to register as visitors; this entails a fee of $12.00, and entitles the registrant to one year's subscription to the *Annals of Internal Medicine*, the official organ of the college.

The Massachusetts Medical Society and the *Journal* extend a hearty welcome to the members of the American College of Physicians, and trust that the success of the meeting will be such that an early return to New England will be guaranteed.

WHY THE MARRIAGE PROTECTION BILL?

House Bill 469 has passed the Committee on Public Health of the Legislature and soon will be reported for action to the House of Representatives. This bill provides that a couple before applying for a marriage license shall consult a physician, who shall make physical examinations and shall take specimens of blood for serologic tests. He must then sign a certificate that he has completed these examinations, and must further communicate his findings to both parties. Thereafter he may treat or deal with the situation privately, according to his best judgment. There is no publicity.

This is a constructive measure that puts squarely on the shoulders of the family physician the responsibility for premarital examination and advice. The traditional patient-physician relation is not violated.

Since the recognition of insanity, tuberculosis, hereditary and many other diseases is as important as that of the widely advertised genito-infectious diseases, the incidence of which seems

to have been much overstated, the thorough examination suggested by this bill is commendable medical practice and should in no case be slighted. The passage of the bill is therefore recommended.

OBITUARY

JOHN PRESTON SUTHERLAND

1854 - 1941

In the night of February 22, John Preston Sutherland passed peacefully and quickly from this sphere of human endeavor into the fuller life of the Great Beyond. Born in Charlestown, Massachusetts, on February 9, 1854, he inherited from his Scottish ancestry those qualities of mental acumen and physical vigor that made it possible for him to endure the stresses of a crowded and accomplishing life well beyond the scriptural threescore years and ten. Although advancing age had necessitated some curtailment of his activities, he remained young in spirit, and had been able to attend patients in his office the day preceding his death.

The brief space available for this sketch makes it possible to consider in a cursory manner only a few of the outstanding characteristics of this truly remarkable man. And primarily we think of him as the physician. Dr. Sutherland graduated from Boston University School of Medicine in 1879 and immediately opened an office in Concord. In 1881 he moved into Boston, and had constantly practiced there since that time. He rapidly developed a large clientele, numbering among his patients many people of prominence. His conscientiousness and painstaking thoroughness soon resulted in his recognition as a physician of exceptional skill; and his kindly and sympathetic manner endeared him to his patients, and gained lasting friendships and loyalties. His colleagues in the profession acknowledged him to be a keen diagnostician and successful prescriber, and he came to be in wide demand as a consultant, making journeys to all parts of New England. He was a firm believer in the homeopathic principle of drug therapy. He served many years as a visiting physician in the Massachusetts Homeopathic Hospital and was a trustee of the hospital. He also served as a consulting physician on the staffs of several other institutions.

As a teacher and educator Dr. Sutherland was peculiarly gifted. His analytical mind and attention to details, his orderly and logical presentation of his subject matter, and his enthusiastic and convincing manner stimulated in his students an ambition to become proficient in the subjects that he taught. His first appointment in Boston University School of Medicine was in 1881, as an assistant in clinical medicine; but his advance was rapid until, in 1888, he was elected professor of anatomy, a position that he held until 1907. He served as professor of theory and practice from that date until 1937, when he became professor of medicine, a position that he held at the time of his death.

Another of Dr. Sutherland's prominent characteristics was his executive and administrative ability, which was early recognized by his associates in the faculty of the medical school and resulted in his appointment as registrar in 1896, and acting dean in 1898. He was elected dean in 1900 and held this office until 1923, when he became dean emeritus. His conduct of the affairs of the school was distinguished by impartiality, skillful handling of men and conditions, and courageous and optimistic dealing with difficult situations. His ability to carry out his policies without arousing lasting antagonisms brought the school through many trying periods. These qualities were generally recognized and appreciated. He served as president of several local, state, national and international organizations, and occupied many positions of trust and responsibility in various fields of endeavor.

Dr. Sutherland was a prolific writer and produced innumerable papers on medical and scientific subjects, which were presented at professional gatherings both in this country and abroad. Many of them appeared in regular publications or in the form of brochures. For fourteen years he was the editor of the *New England Medical Gazette*, and during several years was on the editorial staff of the *New England Journal of Medicine*. In 1937 he completed a book that was published under the title, *Malnutrition: The medical octopus*, detailing his observations and conclusions based on the result of many years of study and experimentation with foods in their relation to health and disease.

Dr. Sutherland was a warm-hearted, self-sacrificing, cultured "gentleman of the old school," one of "God's noblemen." No student ever appealed to him for advice or assistance in vain; no colleague ever failed to receive co-operation and help in response to a request; no worthy cause was ever presented to which he did not give careful consideration and appropriate response. His high ideals and noble purposes have profoundly influenced the lives and actions of many of his students and associates. He disliked artificiality and grossness in persons or material things, and was an ardent lover of nature in all its manifestations. Extensively traveled, widely read and intensely interested in and conversant with a variety

of subjects, he was truly "a man of sovereign parts."

Many honors came to Dr. Sutherland in the forms of elevation to high office, appointment to positions of trust, resolutions, memorials and gifts; but there are two which deserve especial mention. In 1923 the Trustees of Boston University conferred on him the honorary degree of Doctor of Science; and in 1937 the alumni of Boston University School of Medicine presented to the school a bronze bas-relief, which was placed upon the entrance wall as a permanent memorial of the completion of over fifty years of service by Dr. Sutherland to his alma mater. The plaque displays a fine portrait of him, with a suitable inscription concluding in the following words: "Presented by his students as a tribute to an alert observer, a skillful teacher and an understanding friend."

Dr. Sutherland held strong religious convictions, with an unfaltering belief in the influence of a Supreme Being on human activities, and the expanding opportunities for service in a future life. The following poem by Walter Clarke Rodman, entitled, "Adventure," of which Dr. Sutherland was very fond and which was read at the largely attended and impressive funeral services, seems fittingly to express his creed:

To live; to love; to die; to live again;
This is the all of being; but how large
Looms that adventure in the afterward!

Nor life, nor love may here survive, but there
Shall both endure, nor by endurance lose
Their zest. New opportunities for use,
New scenes, new joys, a sense of gratitude
For things mysterious made manifest
Shall there be mine, and not a thought intrude
Regretful of the past. My soul awaits
Expectant the transition. Do I hear
The plash of Charon's oars?
Ho! Ferryman
This way!

W. T. L.

MEDICAL EPONYM

Hegar's Sign

"Ein neues sicheresdiagnostisches Zeichen der Schwangerschaft in den ersten Monaten [A New Infallible Diagnostic Sign of Pregnancy in the Early Months]" was described by C. Reinl, of Franzensbad, in the *Prager medicinische Wochenschrift* (9: 253, 1884) as a contribution from the clinic of Alfred Hegar (1830–1904) at Freiburg. A portion of the translation follows:

> During the course of the past winter the opportunity was afforded me, at the gynecologic clinic of Herr Geheimrat Hegar, of acquainting myself with an excellent new sign of pregnancy in the first months.
>
> This consists in the demonstration of an unusual softness, pliability and thinning of the lower uterine segment, that is, the portion immediately above the insertion of the sacrouterine ligaments.
>
> This condition of the parts mentioned is not only demonstrable if the remainder of the fundus, as is not at all uncommon, feels firm and hard, but also when it is soft and elastic. . . .
>
> The pliability and flabbiness of these parts may be so marked as to cause one to doubt whether there is any connection between the cervix and the larger swelling in the abdomen or pelvis.

R. W. B.

MASSACHUSETTS MEDICAL SOCIETY

SECTION OF OBSTETRICS AND GYNECOLOGY*

Raymond S. Titus, M.D., *Secretary*
330 Dartmouth Street
Boston

Heart Disease in Pregnancy with Fatal Outcome

A thirty-six-year-old primipara was seen early in pregnancy by her doctor.

The past history included rheumatic fever ten years previously, with ensuing rheumatic heart disease. Five years later, the patient suffered from cardiac decompensation.

At the time of the first visit, examination showed that she had mitral stenosis and aortic stenosis and insufficiency. The patient was told very plainly the probable outcome of her case if she continued with the pregnancy, but she insisted that it should not be interrupted.

The pregnancy progressed fairly well, with the aid of digitalis and rest, until the patient was between five and six months pregnant. At this time the heart became decompensated, and a cardiologist was called in consultation. He referred her immediately to the hospital. She was placed in an oxygen tent and was given cardiac stimulants, including digitalis. She seemed to respond slightly, but suddenly developed marked pulmonary edema and died undelivered fifteen days after admission. It was thought that the terminal event might have been due to a pulmonary embolus. Permission for an autopsy was refused.

Comment. This is another case procured from the Maternal Mortality Study, a fact which explains the absence of the specific details concern-

*A series of selected case histories by members of the section will be published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the section.

ing the heart that would naturally have been available in a private case. It illustrates how serious Grade A heart disease may be when complicated with pregnancy. This patient should never have been allowed to become pregnant. In the presence of pregnancy, provided one were thinking only of the medical side, therapeutic abortion should have been performed; this advice was given, but the patient refused to accept it.

The case was not too well handled from the start, since no cardiologist saw the patient until shortly before death. All such cardiac patients when pregnant should be under the care of a skilled cardiologist. This patient should have been in bed constantly. The case proves that organic heart disease is an extremely serious complication in pregnancy.

COMMITTEE ON STATE AND NATIONAL LEGISLATION

The following committee action has been taken on bills in which the Massachusetts Medical Society is interested:

FAVORED BILLS

H. 122. Bill (accompanying House 120, recommendations of the Department of Public Health) relative to requiring the clerk or registrar of each city or town to give to persons who file notice of intention of marriage suitable information concerning gonorrhea and syphilis. Referred to next General Court.

H. 130. Bill (accompanying House 120, recommendations of the Department of Public Health) relative to the sale of barbituric acid, its derivatives and certain other sedatives. Referred to next General Court.

H. 460. Petition of Leslie B. Cutler for legislation to regulate further the filing of notices of intention of marriage, the delivery of certificates of such intention and the return of unused certificates. Reported favorably.

OPPOSED BILLS

S. 502. Petition of Joseph C. Basso for legislation to provide for the regulation of the practice of osteopathy and for the establishment of a state board of osteopathic examination and registration. Withdrawn by petitioner.

S. 560. Petition of Bertram A. Harris and others for legislation relative to the qualifications of applicants for registration as qualified physicians and examinations thereof. Given leave to withdraw.

S. 623. Same as H. 609. Rejected in Senate.

H. 114. Bill (accompanying House 113, recommendations of the Board of Registration in Medicine) relative to providing for the annual registration of physicians and the biennnial publication of the list of physicians duly registered. Reported favorably to Committee on Ways and Means.

H. 115. Bill (accompanying House 113, recommendations of the Board of Registration in Medicine) relative to the recording of the certificate of registration of a qualified physician by the town clerk. Reported favorably to Committee on Ways and Means.

H. 116. Bill (accompanying House 113, recommendations of the Board of Registration in Medicine) relative to establishing a special commission to investigate and study the advisability and practicability of requiring special qualifications of all physicians who engage in the practice of surgery. Withdrawn by petitioner.

H. 272. Petition of Harold W. Sullivan that there be appropriated from the treasury of the Commonwealth the sum of twenty-five thousand dollars to provide for an investigation by the Board of Registration in Medicine relative to the practice of medicine. Given leave to withdraw.

H. 609. Petition of Annie D. Brown for legislation to provide further for regulating the practice of physicians and surgeons. Senate substituted S. 623.

H. 610. Petition of Annie D. Brown for amendment of the law regulating the practice of physicians and surgeons in certain cases. Given leave to withdraw.

H. 1618. Petition of D. N. Potter and others that certificates of vaccination or nonvaccination shall no longer be required as a prerequisite to attendance in the public schools or other institutions of the Commonwealth. Given leave to withdraw.

MEDICAL POSTGRADUATE EXTENSION COURSES

The following sessions, given by the Massachusetts Medical Society in co-operation with the Massachusetts Department of Public Health, the United States Public Health Service and the Federal Children's Bureau, have been arranged for the week beginning April 13:

BERKSHIRE

Thursday, April 17, at 4:30 p.m., in the Bishop Memorial Building, Pittsfield. Management of Abdominal Distention. Instructor: Hollis L. Albright. Harry G. Mellen, *Chairman.*

BRISTOL SOUTH (Fall River Section)

Tuesday, April 15, at 4:30 p.m., at the Union Hospital, Fall River. Chemotherapy in the Treatment of Gonococcal Infection. Instructor: P. N. Papas. Howard P. Sawyer, *Chairman.*

FRANKLIN

Thursday, April 17, at 8:00 p.m., in the Library of the Franklin County Public Hospital, Greenfield. Dermatitis and Eczema. Instructor: Leonard E. Anderson. Halbert G. Stetson, *Chairman.*

HAMPDEN

Wednesday, April 16, at 4:00 p.m., at the Academy of Medicine, Professional Building, 20 Maple Street, Springfield, and at 8:00 p.m., in the Outpatient Department of the Skinner Clinic, Holyoke Hospital, Holyoke. Technic and Treatment of Primary, Secondary and Tertiary Syphilis. Instructor: Rudolph Jacoby. Alfonso A. Palermo, *Chairman.*

HAMPSHIRE

Thursday, April 17, at 4:15 p.m., in the Nurses' Home of the Cooley Dickinson Hospital, Northampton. Nutritional Deficiencies and the Uses of Preparations of Vitamins. Instructor: Maurice B. Strauss. Robert C. Byrne, *Chairman.*

WORCESTER

Tuesday, April 15, at 8:30 p.m., in the Nurses' Home of the Milford Hospital, Milford. Recent Advances in Medical Therapeutics. Instructor: Charles L. Short. Joseph Ashkins, *Chairman.*

WORCESTER NORTH

Friday, April 18, at 4:30 p.m., in the Nurses' Home of the Burbank Hospital, Fitchburg. Pediatric Case Discussions. Instructor: Lewis W. Hill. George P. Keaveny, *Chairman*.

APPLICANTS FOR FELLOWSHIP

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BARNSTABLE DISTRICT

BUTTERFIELD, PAUL M., Harwich Center.
Yale University School of Medicine, 1908.

DENTON, JOSEPH H., JR., 59 Locust Street, Falmouth.
Long Island College of Medicine, 1938.

ROBINSON, JOSEPH, 25 Barnstable Road, Hyannis.
Middlesex University School of Medicine, 1933.

SOBEL, HARRY, 55 Winter Street, Hyannis.
Middlesex University School of Medicine, 1933.

Donald E. Higgins, *Secretary*.

BERKSHIRE DISTRICT

MAGNET, ISAAC H., 44 Main Street, Lee.
Tufts College Medical School, 1937.

MARNELL, T. FRANK, 312 Main Street, Great Barrington.
Missouri College of Medicine and Science, 1927.

George S. Reynolds, *Secretary*.

BRISTOL SOUTH DISTRICT

GOULSTON, HAROLD F., 214 Mt. Pleasant Street, New Bedford.
Tufts College Medical School, 1940.

WARBURTON, NORMAN W., 189 Bates Street, New Bedford.
Philadelphia College of Osteopathy, 1931.
Middlesex University School of Medicine, 1935.

Albert H. Sterns, *Secretary*.

ESSEX NORTH DISTRICT

JESSNER, LUCIE J. N., Baldpate, Georgetown.
University of Königsberg, 1927.

Harold R. Kurth, *Secretary*.

ESSEX SOUTH DISTRICT

CUNNINGHAM, JOSEPH A., 25 Washington Street, Beverly.
University of Freiburg, 1935.

NUSSBAUM, JULIUS, 279 Summer Street, Lynn.
University of Vienna, 1925.

J. Robert Shaughnessy, *Secretary*.

FRANKLIN DISTRICT

ADLER, ERIC D., 26 Congress Street, Greenfield.
University of Heidelberg, 1914.

LANE, VIRGINIA E., Northfield Seminary, East Northfield.
Women's Medical College of Pennsylvania, 1928.

Harry L. Craft, *Secretary*.

HAMPDEN DISTRICT

ALLAN, MALCOLM S., 19 Maple Street, Palmer.
Tufts College Medical School, 1938.

BILSKI, THEODORE, 12 Pleasant Street, Westfield.
University of Halle, 1922.

BLAKER, SAMUEL I., 262 Riverdale Road, West Springfield.
Middlesex University School of Medicine, 1926.

CARY, FRANCIS F., Springfield Hospital, Springfield.
Harvard Medical School, 1938.

CLEVELAND, HAROLD F., 462 Belmont Avenue, Springfield.
Middlesex University School of Medicine, 1920.

GINSBURG, DAVID, 505 Armory Street, Springfield.
Midwest Medical College, 1934.

JORCZAK, JOHN S., 250 School Street, Chicopee.
College of Physicians and Surgeons, Boston, 1931.

KAHN, TRUDE, 319 State Street, Springfield.
Bonn University, 1935.

KLAR, JACOB J., 124 Ellsworth Avenue, Springfield.
College of Physicians and Surgeons, Boston, 1934.

MAZZOLINI, ANDREW, 274 Maple Street, Holyoke.
Middlesex University School of Medicine, 1934.

MEMERY, HARRY N., 117 Longmeadow Street, Longmeadow.
Tufts College Medical School, 1939.

NATHAN, PAUL, 249 Maple Street, Holyoke.
University of Freiburg, 1923.

SCHWARTZ, LEO, 110 West Alvord Street, Springfield.
Middlesex University School of Medicine, 1934.

SMITH, LEONARD, 43 Court Street, Westfield.
Middlesex University School of Medicine, 1930.

VARTANIAN, NEVARD S., 16 Whitney Street, Ludlow.
Middlesex University School of Medicine, 1929.

Wayne C. Barnes, *Secretary*.

HAMPSHIRE DISTRICT

BRICK, EDWARD J., 66 Roe Avenue, Northampton.
Middlesex University School of Medicine, 1934.

DOYLE, BERNARD J., 59 Union Street, Easthampton.
Tufts College Medical School, 1939.

HASKELL, HELEN S., 18 Henshaw Avenue, Northampton.
Cornell University Medical College, 1938.

KRANICHUCK, JOHN M., 81 Bardwell Street, South Hadley Falls.
Tufts College Medical School, 1933.

SHERIDAN, PHILIP H., 16 Center Street, Northampton.
McGill University Faculty of Medicine, 1938.

Joseph D. Collins, *Secretary*.

MIDDLESEX EAST DISTRICT

FISHER, PAUL L., New England Sanitarium and Hospital, Melrose.
College of Medical Evangelists, 1936.

MORELLI, DARIO, 17 Richardson Avenue, Wakefield.
Royal University of Naples Faculty of Medicine, 1932.

PROCHNIK, JAMES J., 19 Yale Avenue, Wakefield.
University of Vienna, 1919.

WHITE, ROLAND H., New England Sanitarium and Hospital, Melrose.
College of Medical Evangelists, 1935.

Kenneth L. Maclachlan, *Secretary.*

MIDDLESEX NORTH DISTRICT

ABRAMS, HERBERT, 10 Staples Street, Lowell.
Tufts College Medical School, 1938.

D'ARTUN, BARON A., 91 Third Street, Lowell.
Faculty of Medicine in Lausanne, 1919.

LANDAU, IRVING I., Boston Road, Pinehurst.
University of Berlin, 1934.

YAVAROW, MILLIN M., St. John's Hospital, Lowell.
Tufts College Medical School, 1939.

Raoul L. Drapeau, *Secretary.*

MIDDLESEX SOUTH DISTRICT

AVALLONE, LOUIS J., 476 Broadway, Somerville.
Middlesex University School of Medicine, 1933.

BELL, GEORGE O., 5 Jaffrey Circle, Waban.
Harvard Medical School, 1934.

BERGMANN, LOUIS, 30 Chiswick Road, Brighton.
University of Vienna, 1932.

BERL, ADOLF, 1875 Commonwealth Avenue, Brighton.
University of Leipzig, 1926.

BLOOMENTHAL, ABRAHAM P., 5 Banks Street, Waltham.
Middlesex University School of Medicine, 1934.

BRUGSCH, HEINRICH G., 6 Spinney Terrace, Belmont.
University of Berlin, 1927.

CAHILL, FRANCIS P., 25 Haskell Street, Cambridge.
Harvard Medical School, 1938.

DEUTSCH, HELENE, 44 Larchwood Drive, Cambridge.
University of Vienna, 1913.

DICK, VERNON S., 17 Stetson Way, Waban.
University of Michigan Medical School, 1933.

EVANS, JAMES A., 137 Dorset Road, Waban.
Harvard Medical School, 1920.

FISCHMANN, 90 Kilsyth Road, Brighton.
University of Berlin, 1926.

FISK, EVELYN B., 14 Stoneleigh Road, West Newton.
University of Vermont College of Medicine, 1928.

GARDNER, GEORGE E., 107 Cushing Avenue, Belmont.
Harvard Medical School, 1937.

GOEHRING, HARRISON D., 40 White Pine Road, Newton Upper Falls.
University of Pittsburgh School of Medicine, 1930.

GOLDBERG, JOSEPH, 384 Ferry Street, Malden.
Middlesex University School of Medicine, 1929.

HAUPTMANN, ALFRED, 12 Kilsyth Terrace, Brighton.
University of Heidelberg, 1905.

HAYES, DONALD R., 88 Marianne Road, Waltham.
Harvard Medical School, 1936.

HUEBER, JOHN W., 25 Day Street, West Somerville.
Tufts College Medical School, 1939.

INGELFINGER, FRANZ J., 127 Washington Street, Brighton.
Harvard Medical School, 1936.

IZEN, DAVID S., 223 Main Street, Medford.
Middlesex University School of Medicine, 1930.

KAPLAN, ISADORE, 137 Ferry Street, Everett.
Middlesex University School of Medicine, 1936.

KUBIK, CHARLES S., Lincoln Road, South Lincoln.
Rush Medical College of the University of Chicago, 1914.

LAMPHIER, JAMES A., 53 Eliot Memorial Road, Newton.
Tufts College Medical School, 1935.

LOWELL, FRANCIS C., 86 Irving Street, Cambridge.
Harvard Medical School, 1936.

LOWENTHAL, THERESA U., 45 Englewood Avenue, Brighton.
University of Berlin, 1925.

MARTIN, DONALD A., Middlesex County Sanatorium, Waltham.
University of Edinburgh, 1936.

MAUTNER, HANS, 880½ Main Street, Waltham.
University of Vienna, 1909.

MEINHARDT, CHARLES, 271-A Salem Street, Malden.
College of Physicians and Surgeons, Boston, 1935.

MORTARA, FRANCO, 585 Broadway, Somerville.
University of Bologna, 1932.

NAUEN, ALICE, 142 Sutherland Road, Brighton.
University of Hamburg, 1926.

NOTHMANN, MARTIN M., 24 Colborne Road, Brighton.
University of Breslau, 1921.

PINTO, SHERMAN S., 11-A Lakeview, Arlington.
University of Nebraska College of Medicine, 1932.

PIPPITT, RICHARD B., 3 Langdon Square, Cambridge.
Harvard Medical School, 1937.

PUTNAM, MARIAN C., 59 Larchwood Drive, Cambridge.
Johns Hopkins University School of Medicine, 1921.

RICHARDS, HAZEL H., 234 Main Street, Malden.
Massachusetts College of Osteopathy, 1927.
Middlesex University School of Medicine, 1930.

RILEY, JOSEPH G., 465 Lexington Street, Waltham.
Tufts College Medical School, 1939.

RITVO, MEYER, 46 Charles River Road, Watertown.
Middlesex University School of Medicine, 1935.

RUESCH, JURGEN, 13 Shepard Street, Cambridge.
University of Zürich, 1935.

SINGER, KARL, 1133 Commonwealth Avenue, Allston.
University of Vienna, 1927.

THIMANN, JOSEPH, 236 Concord Avenue, Cambridge.
University of Vienna, 1923.

TUOHY, EDWARD L., 17 Longfellow Road, Cambridge.
University of Minnesota Medical School, 1931.

Alexander A. Levi, *Secretary.*

NORFOLK DISTRICT

BAYLES, THEODORE B., 52A Eliot Street, Jamaica Plain.
Harvard Medical School, 1936.

CIVEN, EVA, 1077 Blue Hill Avenue, Dorchester.
Middlesex University School of Medicine, 1925.

FAILLACE, FEDELE M., 44 Penniman Road, Brookline.
University of Rome Faculty of Medicine and Surgery, 1934.

FERGUSON, ALBERT B., 1080 Beacon Street, Brookline.
Cornell University Medical College, 1917.

HERTZ, SAUL, 144 Grove Street, Brookline.
Harvard Medical School, 1929.

HESS, LEO, 83 Thorndike Street, Brookline.
University of Vienna, 1903.

HOFFMANN, RICHARD, 327 St. Paul Street, Brookline.
University of Vienna, 1920.

JOSSMANN, PAUL B., 47 Mason Terrace, Brookline.
University of Geneva School of Medicine, 1920.

KARPATI, OSCAR, 1477 Beacon Street, Brookline.
Royal Hungarian Elizabeth University, 1926.

KURZMANN, RUDOLF, State Prison Colony Hospital, Norfolk.
University of Vienna, 1921.

LAWRENCE, KNOWLES B., 87 Perry Street, Brookline.
Yale University School of Medicine, 1934.

LEPEHNE, GEORG, 590 Washington Street, Brookline.
University of Königsberg, 1910.

LOWENBERG, BENJAMIN, 517 Washington Street, Dorchester.
Des Moines College of Osteopathy, 1930.
University of Lausanne Faculty of Medicine, 1939.

LOWENTHAL, FREDERICK, 140 Thorndike Street, Brookline.
University of Bonn, 1913.

LOWIS, SAMUEL, 114 University Road, Brookline.
Harvard Medical School, 1934.

LUISADA, ALDO A., 30 Gibbs Street, Brookline.
Royal University Medical School, Florence, 1924.

McDANIEL, LEWIS T., 2 Autumn Street, Boston (Roxbury).
Harvard Medical School, 1936.

McDERMOTT, LEO J., 372 Longwood Avenue, Boston (Roxbury).
Harvard Medical School, 1934.

McFADDEN, JAMES M., JR., 66 Southbourne Road, Jamaica Plain.
Indiana University School of Medicine, 1936.

MEYERS, MARVIN T., 406 Centre Street, Jamaica Plain.
Kansas City University of Physicians and Surgeons, 1931.

MEZER, JACOB, 16 Angell Street, Dorchester.
Tufts College Medical School, 1936.

MILLEN, HYMAN, 999 Dorchester Avenue, Dorchester.
Middlesex University School of Medicine, 1929.

MILONE, ANTONIO P., 4354 Washington Street, Roslindale.
Middlesex University School of Medicine, 1934.

MULLIN, CHARLES S., JR., Boston State Hospital, Dorchester Center.
Tufts College Medical School, 1936.

POR, FRIEDA, 9 Sewall Avenue, Brookline.
University of Vienna, 1923.

PRESSER, KARL, 210 Riverway, Boston (Roxbury).
University of Vienna, 1924.

REINAUER, ANNA J., 64A University Road, Brookline.
Friedrich-Alexanders University, 1931.

SUBY, HOWARD I., 137 Englewood Avenue, Brookline.
Harvard Medical School, 1934.

von BRUECKE, DORA, 491 Huntington Avenue, Boston (Roxbury).
University of Vienna, 1904.

WHITE, GEORGE, Pondville Hospital, Wrentham.
Tufts College Medical School, 1936.

WILKINS, ROBERT W., 70 Upland Road, Brookline.
Harvard Medical School, 1933.

ZAUDY, ELEONORE C., New England Hospital for Women and Children, Roxbury.
University of Bern, 1935.

Frank S. Cruickshank, *Secretary*.

NORFOLK SOUTH DISTRICT

BLISS, SHELDON P., 69 Commercial Street, East Braintree.
Tufts College Medical School, 1939.

BUTLER, HENRY R., 20 Fenno Street, Quincy.
Harvard Medical School, 1926.

DAVIS, ALBERT, 191 Sea Street, Quincy.
Middlesex University School of Medicine, 1936.

FRANKMAN, WILLIAM, 736 Hancock Street, Wollaston.
St. Louis College of Physicians and Surgeons, 1921.

PEARLSTEIN, MAX, 447 Washington Street, Braintree.
Tufts College Medical School, 1929.

SLOANE, WILLIAM C., 15 South Main Street, Randolph.
Middlesex University School of Medicine, 1934.

Henry H. A. Blyth, *Secretary*.

PLYMOUTH DISTRICT

MARX, MARTIN S., 263 West Elm Street, Brockton.
University of Munich, 1922.

SCHERMAN, RICHARD P., Plymouth County Hospital, South Hanson.
University of Munich, 1920.

Ralph C. McLeod, *Secretary*.

SUFFOLK DISTRICT

ADLER, ALEXANDRA, 466 Commonwealth Avenue, Boston.
University of Vienna, 1926.

CAREY, EDWARD G., Massachusetts Memorial Hospitals, Boston.
Tufts College Medical School, 1937.

COLLINSON, ARTHUR W., 226 Bay State Road, Boston.
Tufts College Medical School, 1921.

CONLIN, JOHN F., John Adams Hospital, Chelsea.
Tufts College Medical School, 1938.

CORDRAY, DAVID P., 240 Commonwealth Avenue, Boston.
University of Pennsylvania School of Medicine, 1936.

CORRADO, JOHN C., 104 St. Andrews Road, East Boston.
Middlesex University School of Medicine, 1933.

DALRYMPLE, LEOLIA A., 245 Commonwealth Avenue, Boston.
University of Toronto Faculty of Medicine, 1925.

DIEUAIDE, FRANCIS R., 5 Chestnut Street, Boston.
Johns Hopkins University School of Medicine, 1920.

DINGLE, JOHN H., 818 Harrison Avenue, Boston.
Harvard Medical School, 1939.

FREUND, ERNST, 1163 Boylston Street, Boston.
University of Prague, 1900.

GOGLIA, ALFRED A., 62 Bennington Street, East Boston.
College of Physicians and Surgeons, Boston, 1936.

GOLDSTEIN, KURT, 334 Commonwealth Avenue, Boston.
Medical College of Breslau, 1903.

MARCUS, PHILLIP S., 17 Worcester Square, Boston.
University of Tennessee College of Medicine, 1936.

McDONALD, EUGENE J., Boston City Hospital, Boston.
Tufts College Medical School, 1937.

RHEES, MORGAN J., Massachusetts General Hospital, Boston.
Harvard Medical School, 1925.

SEIGAL, HAROLD L., Boston City Hospital, Boston.
Jefferson Medical College of Philadelphia, 1938.

SPIEGEL, ERWIN, 452 Park Drive, Boston.
University of Prague, 1928.

ULFELDER, HOWARD, Massachusetts General Hospital, Boston.
Harvard Medical School, 1936.

VILKER, ARTHUR H., 13 Nahant Avenue, Revere.
Middlesex University School of Medicine, 1930.

WOODS, WILLIAM L., 2 Primus Avenue, Boston.
University of Toronto Faculty of Medicine, 1928.

ZOLLO, FELICE J., 145 Lynnway, Revere.
Middlesex University School of Medicine, 1928.

Milton Henry Clifford, *Secretary*.

WORCESTER DISTRICT

APPLEYARD, ARTHUR E., Broad Street, Barre.
Tufts College Medical School, 1939.

COMPSON, JAMES E., 119 Belmont Street, Worcester.
Harvard Medical School, 1939.

GOLICKMAN, LOUIS, 99 Church Street, Whitinsville.
Middlesex University School of Medicine, 1933.

HAIGHT, MEYER H., Main Street, West Warren.
Middlesex University School of Medicine, 1935.

KRETZMER, EUGENE, 29 Maplewood Road, Worcester.
University of Munich, 1908.

MEANY, JOHN H., Worcester City Hospital, Worcester.
McGill University Faculty of Medicine, 1937.

MORRIS, SOLI, Grafton State Hospital, North Grafton.
New York University College of Medicine, 1937.

PATTON, WILLIAM E., Grafton State Hospital, North Grafton.
Washington University School of Medicine, 1934.

PORAS, HARRY H., 234 Chestnut Street, Clinton.
University of Vienna, 1929.

REEVES, DOROTHY M., 68 Uxbridge Street, Worcester.
University of Michigan Medical School, 1938.

ROTHSCHILD, ALFRED F., 167 Lincoln Street, Worcester.
University of Munich, 1918.

SAVIGNAC, RAYMOND J., 35 Freeland Street, Worcester.
University of Strasbourg, 1934.

SMITH, EUGENE F., 6 Park Terrace, Milford.
Tufts College Medical School, 1935.

SULZBERGER, FRED M., 14 Coolidge Avenue, Southbridge.
University of Munich, 1922.

TELL, ABRAM B., 135 Chandler Street, Worcester.
Kansas City University of Physicians and Surgeons, 1931.

ZARITT, HYMAN I., 17 Main Street, Gilbertville.
Middlesex University School of Medicine, 1935.

George C. Tully, *Secretary*.

WORCESTER NORTH DISTRICT

ARGOFF, JOSEPH, 813 River Street, Fitchburg.
Missouri College of Medicine and Science, 1927.

BURKE, ARTHUR E., Gardner State Hospital, East Gardner.
Tufts College Medical School, 1937.

GROSSMAN, MYER J., 599 Main Street, Athol.
Middlesex University School of Medicine, 1933.

HESS, FRANCIS, 38 Main Street, Gardner.
University of Vienna, 1926.

LEVINGER, MAX D., 440 Main Street, Fitchburg.
University of Munich, 1919.

PARNES, JACOB, 7 Main Street, Leominster.
University of Prague, 1937.

Edward A. Adams, *Secretary*.

DEATHS

GODFREY—THOMAS F. GODFREY, M.D., of Springfield, died April 2. He was in his seventieth year.

Born in Northampton, he attended the University of Vermont and received his degree from the College of Physicians and Surgeons of Baltimore, Maryland, in 1898. He was a former member of the Massachusetts Medical Society.

His sister and two brothers survive him.

GREENE—DANIEL C. GREENE, M.D., of Newton, died April 4. He was in his sixty-ninth year.

Born in Kobe, Japan, he attended Harvard University and received his medical degree from the Harvard Medical School in 1899. Dr. Greene had formerly been on the staffs of the Massachusetts General and Children's hospitals and was also on the teaching staff at Harvard Medical School from 1911 to 1930, first as a fellow and then as instructor in laryngology.

Dr. Greene was a fellow of the Massachusetts Medical Society and the American Medical Association, and held memberships in the American Laryngological, Rhinological and Otological Society and the American College of Surgeons.

His widow, two daughters and three sons survive him.

OTT—GEORGE J. OTT, M.D., of Boston, died March 29. He was in his seventy-fourth year.

Born in Bavaria, he lived in Clinton, Massachusetts, until his graduation from medical school. He received his degree from the Albany Medical College in 1894, and was a fellow of the Massachusetts Medical Society and the American Medical Association.

WILLIAMS—HUBERT J. WILLIAMS, M.D., of Boston, died March 29. He was in his sixty-second year.

Born in Boston, he received his degree from Tufts College Medical School in 1901. He was a former member of the Massachusetts Medical Society and retired from active practice in 1932 because of ill health.

Two daughters survive him.

NOTICES

MEDICAL AND SURGICAL SUPPLY COMMITTEE

It will help England greatly in the care of victims of bombing raids and help England prepare for the coming invasion, if physicians in this country will give discarded or superfluous surgical instruments or surgical dressings.

Any such material should be sent to the Medical and Surgical Supply Committee, 420 Lexington Avenue, New York City.

WILLIAM HARVEY SOCIETY

The seventh lecture of the present series given under the auspices of the William Harvey Society of the Tufts College Medical School will be held in the auditorium of the Beth Israel Hospital on Friday, April 18, at 8

p.m. Dr. George B. Wislocki will speak on "The Vascular Supply and Topography of the Mammalian Pituitary Gland." Dr. Benjamin Spector will preside.

All interested members of the medical profession are invited to attend.

BOSTON DOCTORS' SYMPHONY ORCHESTRA

The Boston Doctors' Symphony Orchestra will give its second annual concert on Sunday, May 11, at 8:15 p.m. in Jordan Hall. Alexander Thiede will conduct. Dr. Werner Mueller will appear as soloist.

Proceeds of the concert will be used for the establishment of a fund for a free bed in each of the following hospitals: Beth Israel Hospital, Children's Hospital, Massachusetts Eye and Ear Infirmary and Boston Dispensary. Tickets at $1.00 may be obtained by applying to Dr. Julius Loman, Pelham Hall Hotel, Brookline (BEA 2430).

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NEW ENGLAND PEDIATRIC SOCIETY

A meeting of the New England Pediatric Society will be held on Wednesday, April 30. The clinical presentation will be held at the Children's Hospital, and all the other events at Longwood Towers, Brookline.

PROGRAM

4:00 Clinical presentation by Dr. Kenneth D. Blackfan and his associates at the Children's Hospital.
6:30 Refreshments.
7:00 Dinner.
8:00 Some Physiologic Peculiarities of the Premature Infant. Dr. Samuel Z. Levine, professor of pediatrics, Cornell University Medical College, New York City.

CARNEY HOSPITAL

The monthly clinical meeting and luncheon of the staff of the Carney Hospital will be held in the auditorium of the Carney Hospital on Wednesday, April 16, at 11:30 a.m.

PROGRAM

Case Reports:
Orthopedic. Dr. A. Leo Brett.
Gynecologic. Dr. L. E. Phaneuf.
Surgical. Dr. A. M. Fraser.
Clinicopathological Conference.

Physicians and medical students are invited to attend.

ROBERT BRECK BRIGHAM HOSPITAL

Dr. Albert B. Ferguson will speak on "Roentgenographic Features in Rheumatoid Arthritis" at the Robert Breck Brigham Hospital on Tuesday, April 15, at 7:45 p.m. Drs. Sidney Morrison and Aubrey O. Hampton will lead the discussion.

MASSACHUSETTS MEMORIAL HOSPITALS

There will be a staff meeting of the Massachusetts Memorial Hospitals at the Evans Memorial Auditorium on Friday, April 25, at 8:15 p.m. Dr. Samuel N. Vose will be chairman.

PROGRAM

The Surgical Treatment of Deafness. Dr. Leighton F. Johnson. Discussion by Dr. Philip E. Meltzer.
Some Experiences with Ureteroenterostomy (illustrated by motion pictures). Dr. George Gilbert Smith.

NEW ENGLAND SOCIETY OF PHYSICAL MEDICINE

The New England Society of Physical Medicine will hold its monthly meeting at the Hotel Kenmore, Boston, on Wednesday, April 16, at 8:00 p.m. The evening will be devoted to important business of the society. There will be no scientific program.

The council will meet at 6:00 p.m., followed by an informal dinner at 6:30 p.m.

NEW ENGLAND PATHOLOGICAL SOCIETY

There will be a meeting of the New England Pathological Society on Thursday, April 17, at 8 p.m. at the Peter Bent Brigham Hospital.

PROGRAM

Tumors of the Peripheral Nerves. Dr. Arthur Purdy Stout, associate professor of surgery, Columbia University College of Physicians and Surgeons, and attending surgical pathologist, Presbyterian Hospital and Sloane Hospital for Women.

MASSACHUSETTS SOCIETY FOR RESEARCH IN PSYCHIATRY

The next meeting of the Massachusetts Society for Research in Psychiatry will be held at the Monson State Hospital, Palmer, Massachusetts, on Tuesday, April 15. Luncheon will be served at 1 p.m., followed by the program.

PROGRAM

Gingival Changes Produced by Dilantin Sodium. Dr. Leon J. Robinson, Monson State Hospital.
Research in Mental Deficiency with Special Reference to Birth Injury. Dr. Clemens Benda, Wrentham State School.
Double Symmetrical Porencephalies. Dr. Paul Yakovlev, Walter E. Fernald State School, and Dr. Richard C. Wadsworth, Metropolitan State Hospital.

MEDICAL LIBRARY ASSOCIATION

The forty-third annual meeting of the Medical Library Association will be held at the University of Michigan Medical School, Ann Arbor, Michigan, on Thursday, Friday and Saturday, May 29, 30 and 31, under the presidency of Col. Harold W. Jones, of the Army Medical Library, Washington, D. C. Hotel headquarters will be at the Michigan Union. The program will include papers on the co-operation of libraries, union catalogues, medical history and industrial medicine.

CALIFORNIA STATE PERSONNEL BOARD

The California State Personnel Board has waived the one-year California residence requirement for applicants to fill current vacancies on the medical staffs of various

state institutions. All interested in positions as senior interns and student interns, which carry salaries as well as providing maintenance, should apply to Louis J. Kroeger, State Personnel Board, 1025 P Street, Sacramento.

SOCIETY MEETINGS AND CONFERENCES

Calendar of Boston District for the Week Beginning Sunday, April 13

Monday, April 14

12:15–1:15 p.m. Clinicopathological conference. Peter Bent Brigham Hospital amphitheater.

*7:30 p.m. Roentgenology of the Bones and Joints. Dr. Albert B. Ferguson. Evans Auditorium, 78 East Concord Street, Boston.

Tuesday, April 15

*9–10 a.m. Medical Ophthalmology. Dr. S. T. Clarke. Joseph H. Pratt Diagnostic Hospital.

*12 m. The Present-Day Treatment of Prostatism. Dr. Richard Chute. South End Medical Club. Headquarters of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston.

12:15–1:15 p.m. Clinicoroentgenologic conference. Peter Bent Brigham Hospital amphitheater.

*12:30 p.m. Hospital Council of Boston. Palmer Memorial Hospital, 195 Pilgrim Road, Boston.

7:45 p.m. Roentgenographic Features in Rheumatoid Arthritis. Dr. Albert B. Ferguson. Robert Breck Brigham Hospital.

Wednesday, April 16

*9–10 a.m. Hospital case presentation. Dr. S. J. Thannhauser. Joseph H. Pratt Diagnostic Hospital.

*11:30 a.m. Monthly clinical meeting and luncheon of the staff. Auditorium, Carney Hospital.

*12 m. Clinicopathological conference. Children's Hospital.

8 p.m. New England Society of Physical Medicine. Hotel Kenmore, Boston.

Thursday, April 17

*8:30 a.m. Combined clinic of the medical, surgical, orthopedic and pediatric services of the Children's Hospital and the Peter Bent Brigham Hospital, at the Peter Bent Brigham Hospital.

*9–10 a.m. Endocrinologic Relation between the Hypophysis and the Eye: Problems and facts. Dr. J. Igersheimer. Joseph H. Pratt Diagnostic Hospital.

8 p.m. Tumors of the Peripheral Nerves. Dr. Arthur Purdy Stout. New England Pathological Society. Peter Bent Brigham Hospital.

*8:15 p.m. Problems in Urinary Lithiasis. Dr. Richard Chute. United States Naval Hospital, Chelsea.

Friday, April 18

*9–10 a.m. What Happens to Alcoholics. Dr. Merrill Moore. Joseph H. Pratt Diagnostic Hospital.

*8 p.m. The Vascular Supply and Topography of the Mammalian Pituitary Gland. Dr. George B. Wislocki. William Harvey Society. Beth Israel Hospital, Boston.

*Open to the medical profession.

April 15 — Massachusetts Society for Research in Psychiatry. Page 671.

April 20 — Free public lecture, Quincy City Hospital. Page 436, issue of March 6.

April 21–25 — American College of Physicians. Page 1065, issue of June 20.

April 25 — Salem Tumor Clinic. Page 579, issue of March 27.

April 25 — Massachusetts Memorial Hospitals. Page 671.

April 28–30 — American Academy of Physical Medicine. Scientific session. Page 579, issue of March 27.

April 30 — Boston Society of Biologists. Page 579, issue of March 27.

April 30 — New England Pediatric Society. Page 671.

May 5–9 — American Association of Industrial Physicians and Surgeons and American Industrial Hygiene Association. Page 484, issue of March 13.

May 8 — Pentucket Association of Physicians. Page 263, issue of August 15.

May 11 — Boston Doctors' Symphony Orchestra. Second annual concert. Page 671.

May 13–16 — National Gastroenterological Association. Hotel Commodore, New York City.

May 21, 22 — Massachusetts Medical Society, Boston.

May 28–June 2 — American Board of Obstetrics and Gynecology. Page 262, issue of February 6.

May 29–31 — Medical Library Association. Page 671.

May 30, 31 — American Heart Association. Hotel Statler, Cleveland.

May 30–June 2 — American College of Chest Physicians. Hotel Statler, Cleveland.

June 2–6 — American Medical Association. Cleveland.

October 14–17 — American Public Health Association. Page 579, issue of March 27.

District Medical Societies

ESSEX SOUTH

May 14 — Relation of the Doctor to the Law. Mr. Leland Powers. New Ocean House, Swampscott.

FRANKLIN

May 13 — This meeting will be held at 11 a.m. at the Franklin County Hospital, Greenfield.

NORFOLK

May 8 — Censors' meeting. Hotel Puritan.

SUFFOLK

April 30 — Page 604, issue of October 10.

May 1 — Censors' meeting. Page 261, issue of February 6.

BOOK REVIEWS

The Abnormal in Obstetrics. By Sir Comyns Berkeley, M.A., M.C., M.D. (Cantab.), F.R.C.P. (Lond.), F.R.C.S. (Eng.), M.M.S.A. (Hon.), F.C.O.G.; Victor Bonney, M.S., M.D., B.Sc. (Lond.), F.R.C.S. (Eng.), F.R.A.C.S. (Hon.), M.R.C.P. (Lond.); and Douglas MacLeod, M.S., M.B. (Lond.), F.R.C.S. (Eng.), F.R.C.P. (Lond.), M.C.O.G. 8°, cloth, 525 pp., with 6 illustrations. Baltimore: William Wood and Company, 1938. $6.00.

This is a miniature encyclopedia of deviations from the normal in female reproduction. Although it is not a textbook, it may offer suggestions for explorations into the literature to one concerned with a specific abnormality or some effective factor in an obstetric or gynecologic condition.

Unlike most foreign textbooks, this one shows a fair knowledge of American concepts and practices. It manifests acquaintance with conditions affecting pregnancy in cultures and climes far removed from the teaching clinics of the British Isles. There is no provincialism, and many rare and astonishing cases are mentioned. Diagnostic details and therapeusis, however, as expressed in any of several domestic textbooks are far better for the purposes of American clinicians. This volume is not intended as a vade mecum, but rather as a survey and short discussion of all conditions subject to the twin specialty. This avowed purpose, perhaps, excuses it from the fuller annotations and references, which would authenticate or at least denote the sources of most of the statements made. This lack of substantiation gives the text an air of informality pleasant for browsing but inadequate for learning. There is a bibliography for each chapter, ranging from one item for miscarriage to fifty-four for tumors of the uterus and ovary.

There are a few line drawings in the chapter on transfusion and clyses. One shows the cistern and conductor for a Murphy drip. Another illustrates a table set up for collecting blood for a citrate transfusion, with a foot pump to suck air out of the receiving bottles and a donor with a cuff on his upper arm. The book is well bound and well printed.

La créatine: étude physico-chimique. By Jean Vague and Jean Duncan. 8°, paper, 256 pp. Paris: Masson et Cie, 1939. $1.40.

This book seems a reasonably adequate review of the work on creatine and muscle metabolism, and the bibliography appears to be unusually complete.